
Carbon
Copy plus

SECTION I

Carbon Copy PLUS
User's Manual

Copyright

This version of Carbon Copy PLUS is licensed for use on one PC ONLY! You may make backup copies, but may not by law use the software, or a copy of it on more than one PC at a time. Each PC must have its own licensed copy.

Disclaimer

Meridian Technology, Inc. and Microcom, Inc. make no representations or warranties with respect to the contents hereof and specifically disclaim any implied warranties of merchantability or fitness for any particular purpose. Further, Meridian Technology, Inc. and Microcom, Inc. reserve the right to revise this publication and software, and to make changes from time to time in the content hereof without obligation of Meridian Technology, Inc. and Microcom, Inc. to notify any person of such revisions or changes.

Trademarks

"Carbon Copy PLUS" and "Carbon Copy" are trademarks of Meridian Technology, Inc. and Microcom, Inc. "IBM-PC" is a registered trademark of International Business Machines Corporation. Additional products referenced throughout this manual are registered trademarks of their respective manufacturers.

Section I Table of Contents

Chapter 1 Introducing Carbon Copy PLUS

Chapter 2 Installation and Setup

Chapter 3 Using Carbon Copy PLUS

Chapter 4 Using CCDOS

Appendix C

Appendix D

Appendix E

Appendix F

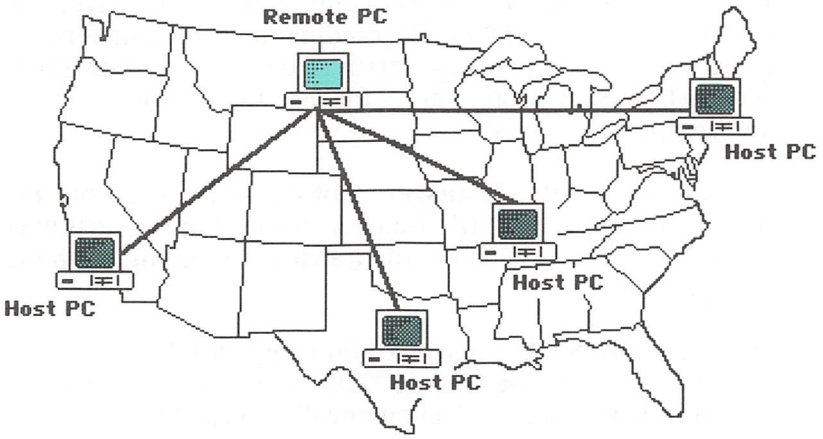
CHAPTER 1

Introducing Carbon Copy PLUS

Introduction

Carbon Copy PLUS is a powerful software "remote control" package for your IBM PC, PC XT, PC AT, PS/2, or IBM-compatible. Through easy-to-use commands, Carbon Copy PLUS gives you the ability to control, monitor, and test software running on a remote PC, as well as transfer files between two computers. Troubleshooting software hundreds or thousands of miles away can be done without the hassle of returning software or traveling to the site itself. Carbon Copy PLUS puts you in both places at the same time.

Carbon Copy PLUS also contains terminal emulation and file transfer capabilities, which allow access to various information databases, as well as the transmission and reception of telexes from around the world. The replacement of terminals by the emulation portion of the program and the inclusion of XMODEM, XMODEM Batch, YMODEM, YMODEM Batch and Kermit file transfer protocols creates many new applications for Carbon Copy PLUS.



Key Features

- **Interactive Graphics**. The following interactive graphics are fully supported, with both sides of the Carbon Copy PLUS link seeing and interacting with the same graphic screen images, including updates and image saves:

  EGA
  VGA
  HERCules
  CGA
  PS/2 Model 30 Extended CGA

  All of the above-mentioned graphics cards are compatible interchangeably. Hence, EGA graphics can be seen on a Hercules graphics adapter.

- **Memory Resident**. The "CC" side of Carbon Copy PLUS is memory resident. If you are the host PC user, that means you don't have to leave the application you are running in order to activate Carbon Copy PLUS.

- **Remove "CC" from Memory.** Carbon Copy PLUS provides CCREMOVE, a utility to remove "CC" from memory without rebooting.

- **File transfer utility**. Carbon Copy PLUS's powerful file transfer utility uses DOS-like commands. The transfers are done with a proprietary, error free data compression protocol. This encryption gives the user the security of speed and complete accuracy.

- **Background File Transfer.** Not only can a remote PC utilize the proprietary file transfer utility, but the host user can work on their PC while file transfers are going on in the background.

- **Online CCINSTAL.** The Carbon Copy PLUS installation utility can be changed while "CC" is in memory. Any changes made online will automatically update "CC."

- **Password protection with dial-back security**. To prevent unauthorized access. When the host PC receives entry of a valid password by the "calling" PC, it terminates the connection and calls-back a predefined number.

- **Error Free Keystrokes.** Carbon Copy PLUS gives you an option to add further error checking capabilities by verifying keystrokes. This is similar to CRC error checking. Sometimes communications sessions appear to have "noisy" lines; error checking will eliminate this problem.

- **Menu-driven Control Screen**. From one main Control Screen, you can access all of Carbon Copy PLUS's key functions.

- **Movable/Separate "Chatting" Capability**. Carbon Copy PLUS allows you to "talk" to the host user by typing directly to the host user's PC screen using separate, movable "chat" windows.

- **Screen/Session capture to disk utility**. With Carbon Copy PLUS, you can save screen images and session activity on a specific disk file and then replay them at a later time. This is useful when diagnosing a problem or documenting an example after the session has been completed.

- **Call Tables for quick and easy access to host PCs.** You can store names, phone numbers and passwords of host PCs and then have Carbon Copy PLUS look up and automatically dial a desired number.

- **Host Printer Output Control.** Not only can a remote PC access and control a host PC, but the host printer output can be controlled as well.

- **Log File**. Maintains a comprehensive log file of all interactions, complete with a full audit trail.

- **Novice User Option.** Easy to use menus and options are provided for the user new to Carbon Copy PLUS.

- **Advanced User Option.** Carbon Copy PLUS provides enhanced capabilities for the experienced Carbon Copy PLUS user.

- **Downward Compatibility.** Carbon Copy PLUS is downward compatible with previous versions of Carbon Copy and Carbon Copy PLUS. You are limited to the capabilities of the version that is earliest.

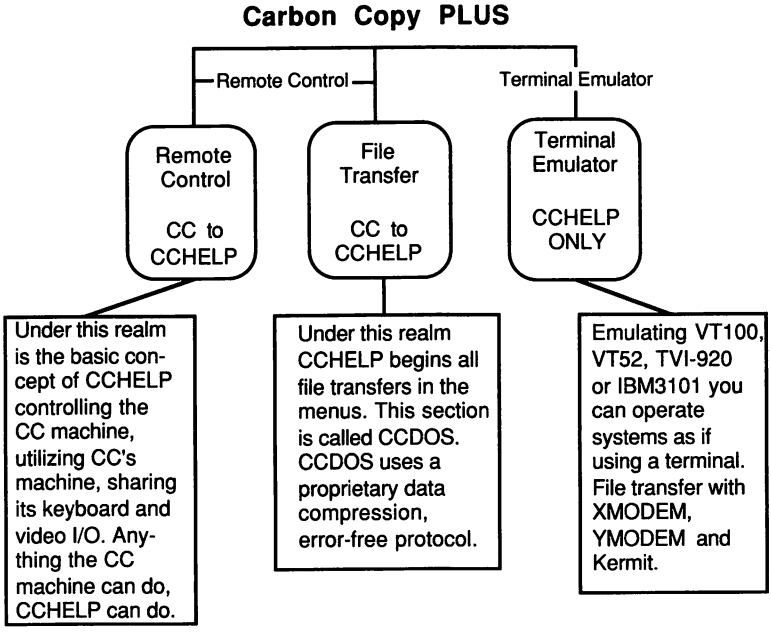
About This Manual

This manual has been structured to inform and teach the user about the full functionality of Carbon Copy PLUS. It is not necessary that each user understand all of the functions of the program. Therefore, we have devised a Novice User Mode. This section is in Chapter 3, and it cites what parts of this manual are mandatory for the Novice User. The Novice User may consider the rest of the manual optional.

The chapters have been structured to lead you through the installation process. You will find complete explanations about each of the options that are in our installation program. They have been set up to inform the user of their functionality, thus giving the user the choice of whether or not to use them. Carbon Copy PLUS provides the user with optional security measures that can be installed. They are documented in detail in the following chapters.

One of Carbon Copy PLUS's strengths is its ease of use once installed. To understand the structure of this manual, you must understand the "branches" of Carbon Copy PLUS. First and foremost, it is a remote control communications package. From there it can be broken down into two realms: "remote control" and "file transfer." Carbon Copy gives you an added PLUS by providing a complete, all purpose terminal emulator. The diagram on the next page illustrates these differences.

Once Carbon Copy PLUS is installed, it is a simple process to learn its features. The manual is structured in the same manner as the diagram. Because the functionality of the Terminal Emulator of Carbon Copy PLUS has major differences from that of the Remote Control, the Terminal Emulator is contained in a separate section of the manual. Section I, found at the front of this manual, completely covers the Remote Control aspects of Carbon Copy PLUS. Section II, at the back of the manual, describes the full Terminal Emulator aspects of Carbon Copy PLUS. Each section has its own Table of Contents and Index.



Section I

Chapter 3 discusses using Carbon Copy PLUS in its remote control state. Chapter 4 completely covers CCDOS, our File Transfer protocol. Chapter 5 provides a Tutorial lesson for a first time remote control session. The Appendices contain additional information that cannot be found elsewhere in the manual. Each Appendix explains a different set of important information needed to operate Carbon Copy PLUS. For instance, if you are an advanced user, you should read Appendix B. It will explain not only advanced options that are available to you, but it will instruct you on using emulation boards such as the IRMA 3270.

Section II

Chapter 2 provides a guideline for the basic operation of the Terminal Emulator. Chapter 3 details File Transfers and other special emulator options. Chapter 4 completely covers the use of script files to automate your operations. Script files can be

programmed to do almost anything you can do while typing, such as calling into a service like CompuServe. The Appendix discusses the menu options, script commands and error messages in detail.

Overall, this manual is designed to provide you with complete and easy to understand instructions on how to fully utilize Carbon Copy PLUS.

GUIDE OVERVIEW — SECTION I

This guide is organized as follows:

- **Chapter 1** introduces you to Carbon Copy PLUS and some of its key features. Hardware and software requirements are also listed here.
- **Chapter 2** gives step-by-step instructions for installing the Carbon Copy PLUS software onto your PC.
- **Chapter 3** presents the commands and actions required to use Carbon Copy PLUS.
- **Chapter 4** explains how to use a powerful Carbon Copy PLUS feature called "CCDOS." With this feature you can perform file transfer and many other related MS-DOS and PC-DOS functions.
- **Chapter 5** provides a Tutorial lesson for a first time remote control session.
- A **Glossary** explains Carbon Copy PLUS and defines various telecommunications terms used within this manual.
- **Appendix A** gives important modem and direct cabling information.
- **Appendix B** lists miscellaneous notes, advanced features and networks.
- **Appendix C** explains how a remote PC accesses and

controls a host PC, and how the host printer output can be controlled.

- **Appendix D** provides a summary of each Carbon Copy PLUS command and its function.

- **Appendix E** lists error messages and troubleshooting instructions.

GUIDE OVERVIEW — SECTION II

- **Chapter 1** introduces you to the terminal emulator portion of Carbon Copy PLUS, and explains how to install named hosts.

- **Chapter 2** explains basic operation of the terminal emulator including all the options available to you in the Setup Menu, incoming and outgoing data filters, placing a call, and ending a call.

- **Chapter 3** gives detailed information on transferring files.

- **Chapter 4** explains other commands available on the emulator menu.

- **Chapter 5** gives an in-depth explanation of script files, including commands, sequencing, compiling, debugging and automatic execution.

- **Appendix A** shows all script file equivalents for emulator menu commands.

- **Appendix B** is an index of emulator menu commands.

- **Appendix C** provides an alphabetical listing of script file steps.

- **Appendix D** lists compiler error messages.

- **Appendix E** presents help screens for each emulation.

Conventions Used in This Guide

The following lists visual and text conventions used throughout this guide:

- Names of specific keys on your PC's keyboard are set off by using **<angle brackets>**.
- "**Remote PC**" refers to the PC on which you are running CCHELP. "**Host PC**" refers to the PC on which CC is running.
- Important notes and information are indicated by a bold "**NOTE:**" or "**IMPORTANT:**" heading.
- Specific Carbon Copy PLUS commands are bold and appear in uppercase letters only.
- Various menu options are shown in bold type.

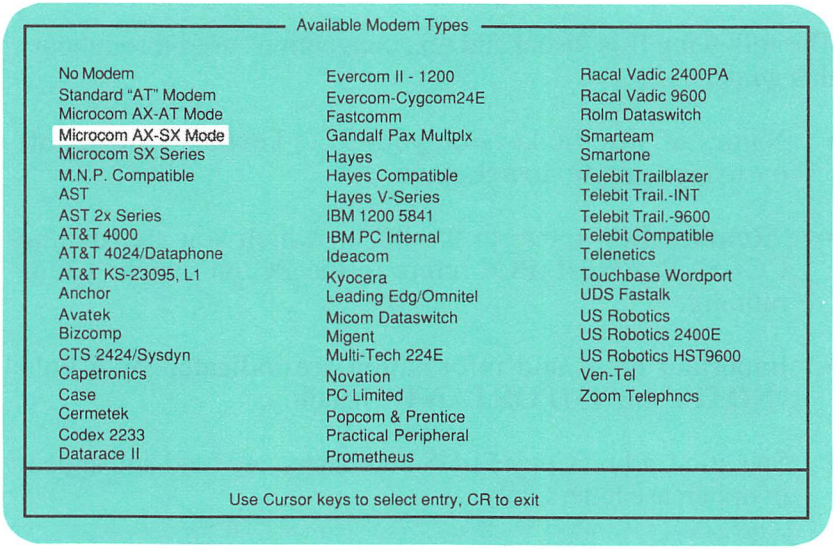
Hardware and Software Requirements

HARDWARE:

Carbon Copy PLUS runs on an IBM PC, PC XT, PC AT, PS/2 or compatible with at least 256K memory. Carbon Copy PLUS will only work on computers using IBM or compatible BIOS.

Disk Drives: Runs on one drive.

Modems: For host operation, Carbon Copy PLUS requires that you have two modems, one for the remote PC and one for the host PC. Both modems MUST be Hayes, Hayes compatible, or they must be listed in the Carbon Copy PLUS modem listing seen while running CCINSTAL. If the PCs are direct connected, modems are not required. This list is subject to change without notice. Some modem types are shown on the next page.



Cables: An RS-232 cable with a standard DB-25 male and female connector is required for each modem used. (See Appendix A for specific cabling information.) If you are using an IBM AT, a DB-9 connector is required.

SOFTWARE:

MS-DOS or PC-DOS 2.0 or later is required to run your PC and to make a working copy of Carbon Copy PLUS.

You must have two separate copies with different serial numbers of the Carbon Copy PLUS Software — One for each PC, direct or modem connection.

ATTENTION:
TERMINAL EMULATION BOARD USERS

Carbon Copy PLUS provides a way for you to gain full control of your emulation board from the remote site.

Emulation boards may include:

IBM	3270
Attachmate	3270
PCOX COAX	3270
IRMA	3270
PCOX Twinax	5250
IBM	5250
SmartAlec	5250
AST	5250

NOTE: The problem with DCA's IRMA software, version 1.47, of not passing all keyboard strokes has been corrected in IRMA software, version 1.49.

For detailed instructions on using your emulation board with Carbon Copy PLUS, please see Appendix B.

CHAPTER 2

Installation and Setup

Introduction

This chapter gives complete step-by-step instructions for installing Carbon Copy PLUS on your PC. Modem connecting instructions are also included here.

Do You Have What You Need?

Before proceeding check to see that you have the following:

- **Two (2) sets of Carbon Copy PLUS Master diskettes with different serial numbers.**
- Two (2) blank, formatted diskettes for each set of Master diskettes to make working copies of Carbon Copy PLUS.
- Two (2) Hayes, Hayes compatible, or any two modems supported by Carbon Copy PLUS, one for the remote PC and one for the host PC.
- One (1) RS-232 cable with a standard DB-25 male and female connector per modem. (The IBM PC AT requires a DB-9 connector.)

Once you have these items, continue to the next section.

NOTE: It is necessary to purchase one copy of Carbon Copy PLUS for each PC, thereby providing you with two different serialized versions.

Carbon Copy PLUS Diskettes Contents

The following files are contained in the Carbon Copy PLUS Master diskettes:

Master Diskette

- CCSTART.EXE
- CC.INS
- CCHELP.INS
- CCINSTAL.EXE
- MODEM.DSS

Utility Diskette

- MODEM.DSC
- CCHLP.MSG
- CCLOG.EXE
- CCSECURE.EXE
- CCS.EXE
- CCREMOVE.EXE
- *.CCS
- *.PRM
- READ.ME
  (Optional Notes File)

NOTE: The 3.5 inch distribution format will contain all these files on one diskette.

DO NOT COPY THE MASTER DISKETTE BEFORE you run CCSTART using the Master program diskette as described in the following section. Any other action may ruin your Master diskette.

The following files contain predefined script files and parameter settings to assist in logging onto popular information services. These files may be edited with your favorite editor, then compiled with the Carbon Copy PLUS CCS compiler as described in Section II.

- ***.CCS**
- ***.PRM**

NOTE: The file "CCHLP.MSG" is an optional graphics signon screen and can be deleted.

Installing Carbon Copy PLUS (Remote and Host PC)

The steps presented in this section must be followed by both the remote and host user. **DO NOT COPY THE FILES ON THE MASTER DISKETTE BEFORE PERFORMING THESE STEPS!**

Step 1: After "rebooting" your PC, insert the Carbon Copy PLUS master diskette into Drive A.

Step 2: At the A> prompt, type:

CCSTART <Enter>

You then will see the Carbon Copy PLUS Sign-on Screen and a request to enter your company name.

Step 3: Type in the name of your company at the request.

Step 4: Next you will be asked to verify that the company name is correct. Be sure to double check, because you will not be able to change it later.

Step 5: Once you have done this, Carbon Copy PLUS will create the modules:

CCHELP
CC

The files CC.EXE and CCHELP.EXE have now been added to your Master diskette. When this has been done, you will be told "Carbon Copy Customization Complete" and can continue on to configure your system for operation.

Questions will appear on your screen. They are relative to this first-time installation of CCINSTAL. The questions will give information about your system. A CGA system will have questions about screen flicker and clarity. These questions will not appear if your system is MONO, VGA or EGA. Most systems will work perfectly on the **Default** Display setting.

By completing the questions concerning COMM port, modem type, and modem speed that will appear on your screen, your system will be configured automatically. These questions will appear only during your first installation, or when you delete CC30.CFG.

You may choose to type **X** to complete the configuration, or press any other key for the CCINSTAL Configuration Screen. CCINSTAL is detailed in the next section of this chapter.

Anytime you want to change the settings in your configuration files, simply rerun CCINSTAL by following the steps presented in this chapter.

Before proceeding you should check your modem dip switches. Some modems do not allow software commands to override the hardware dip switch settings. When this is the case, you must make sure that these two key attributes are set up properly:

- Support of the RS-232C DCD lead, allowing pin 8 (DB25, Pin 1 on a DB9) to track the state of the data carrier (CD) from the remote station. (**DO NOT** force the CD lead **TRUE**.)

- Support of the RS-232C DTR lead, allowing pin 20 (DB25, Pin 4 on a DB9) to toggle True or False. (**DO NOT** force the DTR lead **TRUE**.)

You should double check your dip switches. The popular Microcom and Hayes dip switches are provided below. Microcom QX series modems must be used in AT mode only.

Microcom AX and QX Series	**AT Mode**
Front: switches 2, 3, 8	DOWN All other switches UP
Rear: switches 3, 6, 7	DOWN All other switches UP

Microcom AX Series **SX Mode**

Front: switches 4, 8 DOWN
All other switches UP

Rear: all switches UP

Hayes Smartmodem 1200 8 and 10 switch modems

Switches: 3, 8, DOWN
1, 2, 4, 5, 6, 7, 9, 10 UP

Hayes 1200B - Internal 6 switch modem

Switch: 1 (COM1) DOWN
1 (COM2) UP
3, DOWN
2, 4, 5, 6 UP

NOTE: Be sure to check the modem's manual for the switch settings appropriate for your particular modem.

Creating The Configuration Files

CCINSTAL

By establishing parameters in CCINSTAL, you will set up the Configuration Files necessary for your system to run the program properly. These files are called CC30.CFG and MM30.CFG.

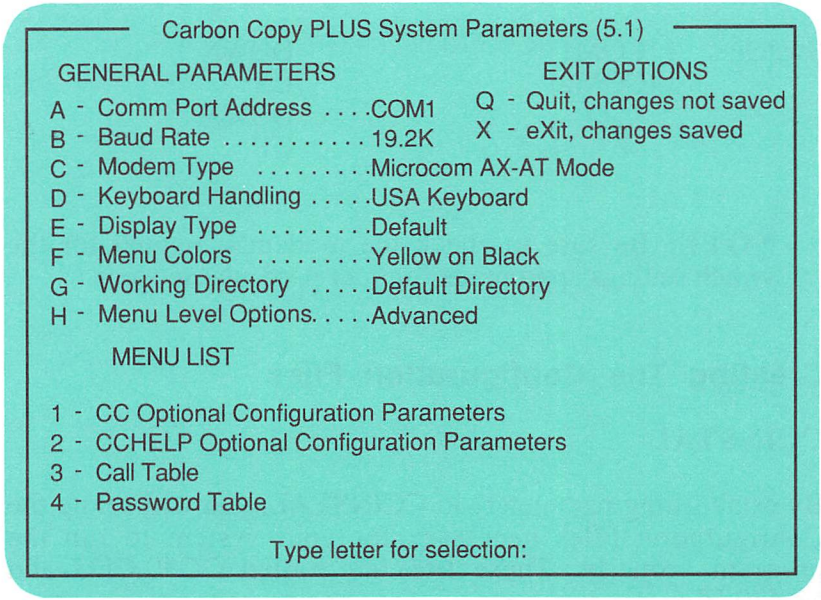
At the DOS prompt, type:

CCINSTAL <Enter>

NOTE: If you are using a PC with a color graphics card and a monochrome monitor, type CCINSTAL M at the DOS prompt. This will result in a display of white on black.

Once you have answered all the "first time" questions, you may choose to press **X** to exit and save your settings, or any other key to see the Carbon Copy PLUS System Parameters screen. This is also known as the Configuration Screen. If you have used Carbon Copy PLUS before, the screen will appear with settings that match your Configuration Files.

Your next step is to make sure the Configuration Screen has the correct information about your system. The following material will discuss each option shown on this screen. Each time you type the letter of your selection, the program will display another choice for that selection. When you have the proper setting for an option, simply type the letter for the next field you wish to change.



A — COMM Port Address

Your choices are **COM1**, **COM2**, **COM3**, **COM3-PS/2**, **COM4**, **COM4-PS/2**, or **OTHER**. If you are using a modem to communicate with the other PC, this denotes which port is being used for your modem connection. If you are connected to the other PC by cable, this setting indicates which port is being

used for the cable connection. The **OTHER** option allows you to define the correct interrupt and address settings for your modem. You may choose an IRQ # from 2 through 15 by using the arrow keys. When you have done this, you will be asked to type in the proper port address, from 0 through FFFF. This option is useful for compatible COMM cards as well as the new IBM PS/2 COMM ports. The unique IRQ and address should be in your COMM port's hardware manual. (See Appendix E for corresponding COMM port addresses and IRQs.)

B — Baud Rate

Here you will choose the modem speed compatible with the modem you are using.

> **IMPORTANT:** This setting must be the same for both the host and remote PCs during direct connection. Please see Appendix A, for a full description of modems and their ability to "auto-baud."
>
> **NOTE:** The speed of 38.4K will not work properly on all machines. For example, PCs that run at 4.77 Mhz cannot keep up with this speed. If you are experiencing difficulties using 38.4K, lower your baud rate.

C — Modem Type

When you select this option, a list of supported modems will appear on the screen. If you select Microcom QX/12K or QX/V.32c, you must set the modem's switches for AT mode. See Appendix B if your modem does not appear. Use the arrow keys to choose which modem you are using. If the two PCs are cabled together, choose **No Modem**. When you have chosen the proper modem, you will be prompted with the "default baud rate" for that particular modem. If this is the correct rate, press **<Enter>**; if you wish to use a different baud rate, use the **<B>** key to select the proper baud rate. (See Appendix A for additional cabling information.)

D — Keyboard Handling

Your choices are **USA Keyboard** and **International Keyboard. International Keyboard** is only available on foreign versions of Carbon Copy. It is not necessary for CC and CCHELP to use the same keyboard choices during a connection.

E — Display Type

Here you will choose the type of monitor you are using. A CGA system may need to clear flicker or snow from the screen. All other systems can operate on the **DEFAULT** setting. Selecting **COLOR** will provide faster screen updates than the **DEFAULT** setting because it will not be filtering out objectionable snow on your color monitor.

> **NOTE:** When a system is being utilized with two monitors, Display Type should be set to **DEFAULT** and the file CCHLP.MSG should be deleted. This file is the graphics signon screen.

F — Menu Colors

The choices presented here will select the colors of the screen display. If you are working with a color monitor, choose whichever option is best for you. The factory setting is **Yellow on Black**. If you are using a monochrome monitor, you will notice different intensities of color on your screen.

G — Working Directory

This option allows you to choose which directory you will keep ALL your Carbon Copy PLUS-generated files in (for example, the log file). If you choose **G**, you will be asked for the directory name. This name must include the disk drive and DOS full pathname, if other than the default. For example:

C:\MYNAME

H — Menu Level Options

This option provides the choice of using short form menus for the novice user within CCHELP and CC. Expanded menus are available for the more experienced Carbon Copy PLUS user. They are the default.

Optional Configuration Parameters

From the System Parameters Screen, you enter the "CC Optional Configuration Parameters Screen" by pressing **<1>**. You will see a screen that looks like the one shown below.

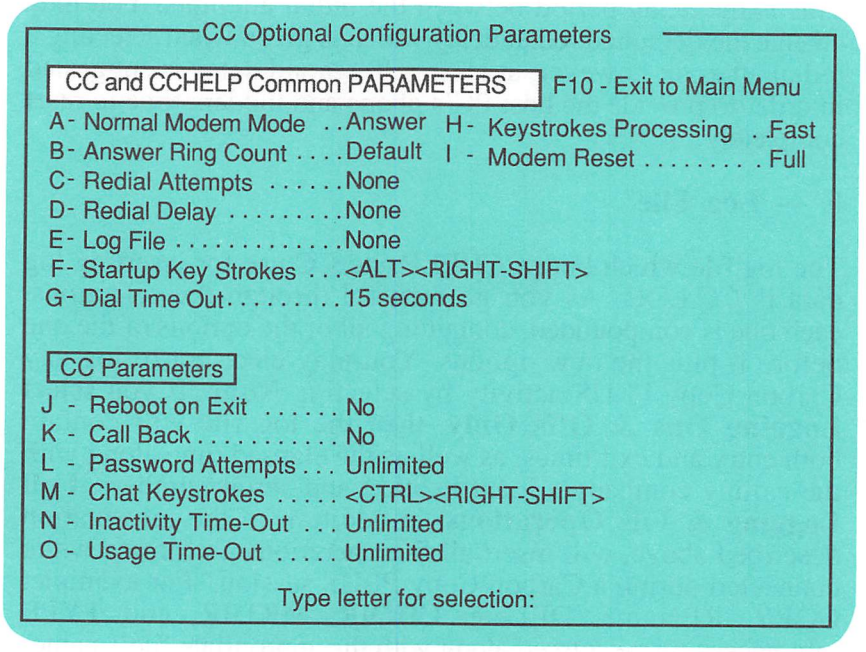
Specific options from this menu can be set to vary the communications activity of your modem.

Under "CC and CCHELP Common Parameters" you will find:

A — Normal Modem Mode

Your choices are **ANSWER** and **NO ANSWER**. If you choose **ANSWER**, your modem will answer the phone if it rings and establish communication with the modem at the other end of the line.

> **IMPORTANT**: The host PC's modem must be set to **ANSWER** if you want the modem to pick up the line.



B — Answer Ring Count

Here you will define the number of rings before your modem will answer the line. You can set any number from 0 to 31, with a higher number used to discourage unauthorized user. If you set it to 0, your modem will never answer the phone. The default is 1. You may want to set this ring count higher if you have a telephone on the same line.

C — Redial Attempts

With this parameter you define how many redial attempts either CCHELP or CC will perform before returning to the main menu. When you use this option, CCINSTAL will automatically set a redial delay of 30 seconds if you have chosen a value of 1 or higher and have not set any redial delay.

D — Redial Delay

This is the delay period between the redial attempts. You may change the defaulted redial delay which is given when selecting a redial attempt; however, at least a 30 second delay is suggested in order to provide the host PC's phone and modem time to reset completely.

E — Log File

The log file which both CCHELP and CC use for inserting log data is CC.LOG. As you go forward through the selections, each one is compounded, containing all of the options of the one before it plus the new options. You may elect not to log any Carbon Copy PLUS activity by selecting **None**. If you select **Logging Ons & Offs Only**, then the log file will contain both entry and exit times, as well as the elapsed time along with the calling company's identification and serial numbers. **Full Logging & File Operations**, in addition to the information described above, will insert all file operations performed while connected during a Carbon Copy PLUS session. For example: COPY, RENname, DELete, CHDIR, MKDIR, and TYPE references will be entered along with the appropriate file's name.

The **Continuous Audit** option will log ALL CC and CCHELP activity, including any DOS file operations, from the moment you begin using Carbon Copy PLUS.

> **NOTE:** When using the option for **Continuous Audit**, you are requesting the log file to begin a "Continuous Audit" **IMMEDIATELY** after CC is loaded into memory. Therefore, it will record all file operations performed regardless of whether or not CCHELP has made a connection with CC. The recording of these file operations to the log file will slow down the I/O on your disk slightly, as it is recording each and every file operation. If you have a slow machine, it can drastically reduce your I/O. It is suggested that this option only be used when a true **Continuous Audit** is necessary. You may use **Full Logging & File Operations** which will only record all the activity while connected during a Carbon Copy PLUS session.

F — Startup Keystrokes

Once CC.EXE is running as a memory resident program, this is the hot key sequence you press to bring up the Carbon Copy menus. It is where you can either "chat" with a remote user or place a call to a remote user. Chapter 3 gives details about the menus. If you have other programs to load memory resident, with their own hot key sequences, make sure that the hot keys are not the same as those chosen in this parameter.

When CCHELP.EXE is run as a memory resident program, these same keystrokes become its hot key sequence.

> **NOTE:** When the remote and host users are connected in the session, the host user's (CC) startup key strokes will bring up the control screens on both PCs. The remote user's (CCHELP) startup keystrokes are overridden by the host user's and will not bring up the control screens if they are different. Therefore, when the remote user is connected to the host, it must use the host user's hot key sequence.

G — Dial Time Out

This option is useful when Carbon Copy PLUS is used to dial out to computers using an automatic turn on device. An example of this would be a computer that is dependent on the number of rings from a modem, for example. You choose a setting, from 45 seconds to 4 minutes 15 seconds, which will allow enough time for the host computer to power up while the remote is dialing in to it.

> **NOTE:** All modems have their own register set for dial time out. Hayes, however, has conformed to the AT&T standard of a 30 second dial time out. Regardless of the state of the "S7" register, a Hayes modem will stop dialing after 30 seconds. Other modem manufacturers may follow suit on this. If a modem's "S7" register times out, software will not be able to override it. Carbon Copy PLUS attempts to set this register to 255 seconds, thus giving a dial time out of 255 seconds. (See your modem manual for complete documentation on the "S7" register.)

H — Keystrokes Processing

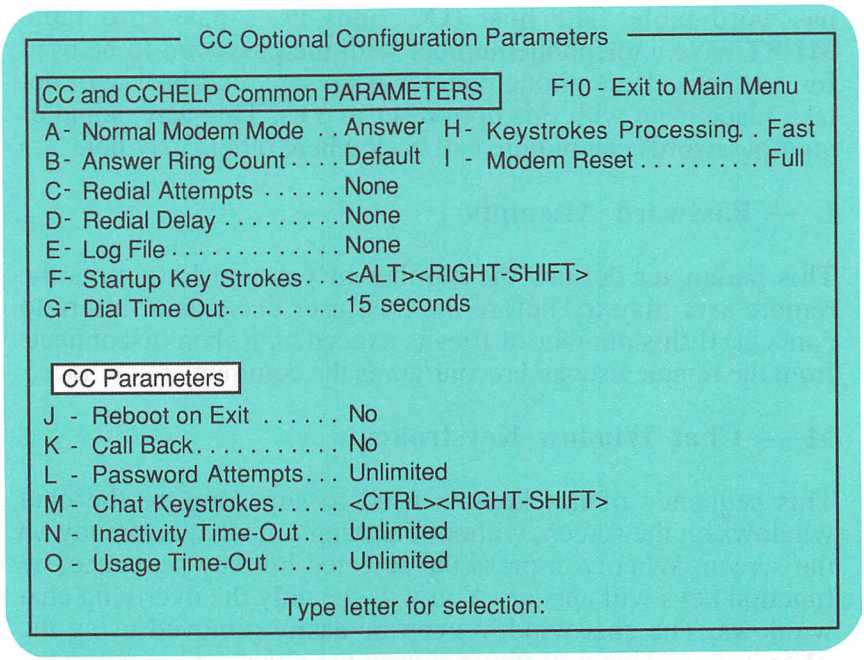
Choosing **Keystrokes Processing - Reliable** tells Carbon Copy PLUS to check your communication line for errors and filter them out. Using this option will slow down your communications slightly. When either side, CC or CCHELP, has this option set to **Reliable**, the error checking capability is on. This process is similar to CRC error checking. The default setting is **Fast**.

> **NOTE:** In previous versions of Carbon Copy, keystrokes were not checked for errors. This option allows the choice to have the keystrokes packetized and error checked. It is only necessary if you are experiencing difficulties. It will slow down the keystroke representation because it is packetizing and checking it. For this reason, **Fast** is the default.

I — Modem Reset

Choosing **Full** or **Partial** Modem Reset provides a choice for advanced users. The **Full** option will hang up the phone and

completely reset. Choosing the **Partial** option provides for quick disconnects by using the **<F1>** or **<Alt><X>** keys. It will hang up the phone but will not reset the modem in order to save time.



J — Reboot On Exit

There are three choices for this option: **After 5 minutes**, **Immediately**, or **No**. Choosing to reboot **After 5 minutes** will allow the remote PC to call the host PC back before the system reboots if there has been an unintentional disconnection — a problem with the telephone lines, for example. If any keystrokes are pressed on the host side within the 5 minutes, it will not reboot. Choosing to reboot **Immediately** will reboot the host immediately after disconnection. The **No** option will not reboot the system. The default is **No**.

K — Call Back

The call back option provides additional security for the user. If you choose **Yes** and the remote user calls the host user with a

callback password, the host user's PC will hang up the phone and call back the remote user's PC using the phone number associated with the password as defined in the host user's password table. The host (CC side) PC's password table **MUST** have a telephone number with the password to be used for call back. If no phone number is present, call back will not take place even with this option set to **Yes**. This way, some of your passwords can require call back where others may not.

L — Password Attempts

This parameter defines the number of password attempts the remote user may try before the host user declares a failure to connect. If this number of tries is exceeded, it then disconnects from the remote user and reconfigures the communication line.

M — Chat Window Keystrokes

This sequence of hot keys is used to superimpose the chat windows on the screen, without blanking out what is already on the screen. When you press the selected hot key sequence, no function keys will appear. You will see only the overlying chat windows. The chat windows can be easily removed using the **<ESC>** key. This will return you to the exact screen you were on before you pressed the chat window keystrokes. Select the sequence that is easiest for you to use.

The chat windows are movable. Use the up arrow to move the window up on your screen, or the down arrow to move the window down on your screen. CCHELP and CC can move the chat windows on their screens independently of each other so that CC could have the window up and CCHELP could have the window down, or both could have the windows up, or both down, depending on what is most comfortable for the user.

> **NOTE**: As with the 'Startup Keystrokes,' when in a Carbon Copy PLUS session, the host (CC) user's key strokes override the remote (CCHELP) user's keystrokes.

N — Inactivity Time Out

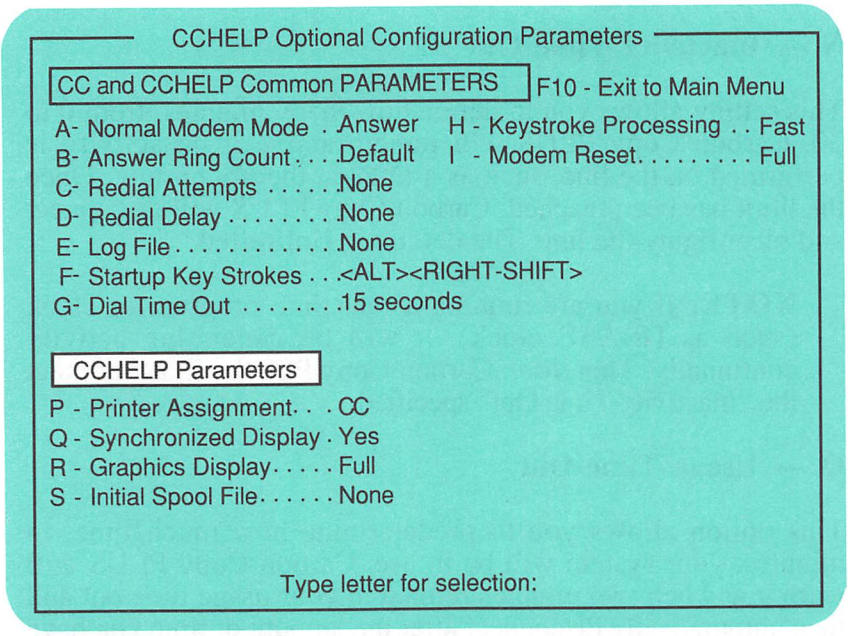
This setting allows you to define how many minutes, from 0 to 30, Carbon Copy PLUS will remain active if no activity is performed on the line, such as a DIR on the C> prompt. Once the limit has been reached, Carbon Copy PLUS will disconnect and reconfigure the line. The default is **Unlimited.**

> **NOTE:** If you are running a real time program or clock (such as DBASE clock), it will be generating activity continually. Therefore, Carbon Copy PLUS will never meet the "Inactivity Time Out" specified.

O — Usage Time-Out

This option allows you to predetermine how much time, in minutes, your system will be in use. Carbon Copy PLUS will warn you when two minutes remain in your usage time out and then automatically disconnect after the amount of time you have chosen has elapsed. Your choices range from 5 minutes to a maximum of 255 minutes. The default for this option is **Unlimited.**

The CCHELP Optional Configuration Parameters screen is similar to that for CC.



Under "CCHELP Parameters" you will find the following options. Each choice will toggle between the available selections.

P — Printer Assignment

The printer output is automatically assigned by Carbon Copy PLUS to go to the CC side. If you wish to print on the CCHELP side, change the default setting of "CC" to "CCHELP." (See Appendix C for more information on printing with Carbon Copy PLUS.)

Q — Synchronized Display

The default for this option is **Yes**, providing identical screens (synchronized) between CC and CCHELP. (See **<F8> - Data Link Maintenance** in Chapter 3 for further details.)

R — Graphics Display

You now have the capability of choosing **Full** display or **Fast** display for graphics in CCINSTAL. Fast display will show only one-half of the pixels for a graph, allowing a quick overview. The default setting is **Full**. (See Chapter 4, **<F8>** options, for further details.)

S — Initial Spool File

This option is for setting up the defaults which direct the online printing and/or spooling.

- **NONE** -- Printing on-line or spooling not done
- **Extend CCPRT.SPL** -- Print file is spooled only
- **Print CC Ptr Output** -- On-line printing only
- **Print/Spool to CCPTR.SPL** -- On-line and spooling at the same time

When a remote and host PC are connected, option **<F6> Printer/Log/DOS Control** from the CCHELP control screen will allow the remote user to enter a spool file name, cancel spooling, direct the online printing to the remote or host printer or both, or enable a combination of printing and spooling. From the Carbon Copy PLUS control screen, option **<F6>** allows the host user to redirect the printing activity. Note that choosing options in **<F6>** can override any selection you have made in CCINSTAL. (Further information on this control screen option can be found in Chapter 3 and in Appendix C, "Printing with Carbon Copy PLUS.")

Call Table

The Call Table, under Menu List option 3, is where you enter your "phone book" for Carbon Copy PLUS. It contains the names, telephone numbers, and passwords you will need to call other PCs. When you ask Carbon Copy PLUS to dial a host or remote PC by using a name from the Call Table, it will retrieve the phone number and password associated with the name. If you want CCHELP to log in automatically, then the password

MUST be entered in the Call Table so that CCHELP can send the password automatically. You will be prompted for the phone number and password if they are not in the Call Table. The maximum number of Call Table entries is 190.

> **NOTE**: If your PCs are linked via direct connection, it is not necessary to enter a telephone number in the Call Table. You must, however, enter a name and a password for the call to be completed automatically. You may also enter a carriage return at the phone number prompt and then type in the appropriate password.

The Call Table is used only by the PC initiating the call. Either CC or CCHELP can originate a phone call and then use the Call Table if they wish. To access the Call Table, press **<3>** from the Carbon Copy System Parameters Screen. You will see a screen that looks like this:

CALL TABLE

Use Arrow Keys, Pg Up, Pg Dn, Home & End to Position Field Pointer
To Edit a Field enter a character, Ins, Del or F1

FUNCTION KEYS

F1 - Edit Current Field
F2 - Insert Line
F3 - Delete Current Line Entry
F4 - Sort Entries by Name
F5 - Edit Current Line Emulation Table
F6 - Special Phone Characters
F7 - Print Call Table
F9 - Help
F10 - Exit to Main Menu

Name	Telephone Number	Password (:Batch File)

NOTE: CC can call CCHELP, but remember that CC does not need a password to call CCHELP. In order for CC to call CCHELP, CCHELP must be up in its menus.

In the "Name" field you will enter the name of the user site of the PC you want to call. (**REMEMBER**: a "Name" entry cannot begin with a number.) The name will appear in upper case. In the "Telephone Number" field, enter the phone number associated with that user.

The "Password" field should contain the password necessary for logging onto that user's system. The password will automatically be sent to the system you are calling.

You may generate more than one entry for a specific phone number that you call repeatedly. This is helpful when using services such as MCI and credit card calls that require access codes. For example:

MCI John

would call and access MCI using John's access codes.

NOTE: This process links two SEPARATE Call Table entries. Spaces are not allowed in a Call Table entry. The MCI "Call Table Entry" contains the phone number to access MCI and the John "Call Table Entry" contains the access codes for MCI once it has established the connection. Instead of a space, an underscore ("_") can be used as a concatenator for longer names.

Certain characters (called dial modifiers), when added to the number field have specific uses, as outlined below. If you are calling through a switch, the [character must be the first in the field. The examples listed are Hayes Smartmodem 2400 factory defaults.

Adding a **comma** (",") to a dial string will cause Carbon Copy PLUS to pause before dialing the next character. The default is 2 seconds. You can use more than one comma if you need a longer pause. This is normally used to dial out of switchboards.

T before the phone number tells Carbon Copy PLUS to Touch-Tone dial the string that follows. This is the Carbon Copy PLUS default setting.

If you wish to PULSE dial, you must enter **P** before the phone number **in the Call Table**. For example:

P5555555

If you enter a **W** in the dial string, Carbon Copy PLUS will wait the modem's specified period of time to wait for dial tone before dialing the numbers that follow. The default is 30 seconds.

By adding the **@** sign to the dial string, you are telling Carbon Copy PLUS to wait for 5 seconds of silence after a specified time period before dialing the next character. The modem defines the **@**'s default as 30 seconds.

If you need to transfer calls, use the **!** symbol. This produces the same effect as holding down the switch-hook button of your phone for 1/2 second. The **!** option is dependent upon the switch board you are using to handle this feature.

AUTOMATIC BACKGROUND FILE TRANSFERS

You can perform file transfers that will run in the background on the CC side. This can be done automatically via a Call Table entry. Complete use of the background file transfer option will be explained in Chapter 4, "Using CCDOS."

NOTE: When performing background file transfers, Carbon Copy PLUS supports Drives **A** through **I** only. Background file transfer works on Version 5.0 to Version 5.0 only.

The Call Table entry should contain a name, phone number, and a password. However, the password field should contain a password, then a colon (":"), then a batch file name. This batch file name must exist in the sub-directory you are running CCHELP from. The colon and the batch file name will be highlighted to denote the use of automatic background file transfer. It should also contain the command **EXIT** as the last command, if you want the connection to disconnect

automatically. An example of an automated background file transfer Call Table entry would be:

Name	Telephone Number	Password (:Batch File)
LA	17036665454	CC:GOBAT

NOTE: While performing multi-file background transfers, do not run any disk manipulation program such as XTREE or CHKDSK.

MOVING AROUND THE CALL TABLE

<Arrow Keys> The arrow keys are used to move from one field to another, up or down, left or right.

<Enter> The **<Enter>** key will allow you to move from one field to the next, but only in a forward manner.

<Pg Up> takes you to the beginning of the previous page.

<Pg Dn> takes you to the beginning of the next page.

<Home> takes you to the beginning of the Call Table.

<End> takes you to the last line of the Call Table.

EDITING THE CALL TABLE

<Del> will delete the character the cursor is on.

<Ins> will insert spaces between character.

<Enter> You must press **<Enter>** when you have completed editing a field.

<F1> Edit Current Field

Press **<F1>** when you have moved the cursor to the field you wish to edit. If it is a blank field or you want to replace what is currently in the field, just begin to type. Press **<ESC>** if you wish to revert to the previous information in this field. (Do this before you press **<Enter>**!)

<F2> Insert Line

Press **<F2>** if you wish to insert a line on the Call Table. All the lines from the cursor down will move down one line and a new blank line will appear. The cursor will now be positioned on the new line.

<F3> Delete Current Line Entry

Press **<F3>** to remove the line your cursor is on. The cursor must be in the "Name" field to use the **<F3>** key.

<F4> Sort Entries by Name

You may enter names in any order you wish. When you press **<F4>**, the names will be sorted alphabetically and repositioned on the screen. The names are automatically sorted when you exit to the main menu.

<F5> Edit Current Line Emulation Table

You may press **<F5>** when the cursor is on any Call Table entry if you want to choose a terminal emulator configuration to be stored with that Call Table entry. The full emulator setup will then be stored with this Call Table entry, so that you may make an automatic connection with your host computer and have the setup all ready. Please see the Carbon Copy PLUS Terminal Emulator Section II for more information on this sub-menu.

<F6> Special Phone Characters

If you need to add optional special characters to the telephone number field, press **<F6>**. The **<F6>** key can be used only while in the phone number field. Its purpose is to allow the use of a **Carriage Return**, **Delay of .5 Seconds**, **Line Feed,** or **Wait for Carrier Detect** in any sequence before or after the number is dialed. These characters are not required for most modem connections.

For instance, when it is necessary to dial into a dataswitch, you can be in [network/switch mode. This allows Carbon Copy

PLUS to "talk" back and forth with the switch. In the phone number field, you would put the modem number to dial, followed by the [. From this point forward you must put in as many carriage returns or .5 second delays as are necessary to logon to the switch and reach the PC that is running CC.EXE. A comprehensive example is shown below.

Name	Telephone Number	Password (:Batch File)
TAMPASWITCH	12025551212 ¦ ♀ ¦ ~M44 ¦ ~T60 ¦ ~	CC

This would dial the modem number and wait for carrier detect before continuing with the rest of the sequence. Then issue 3 carriage returns, wait .5 seconds, enter in the first access code, issue another carriage return, wait .5 seconds, enter in the next access code, issue another carriage return, and wait .5 seconds. Now the call is successfully connected to the PC that is running CC.EXE, and the password is transmitted to the host PC. CCHELP and CC will connect automatically. Remember that this example must now be geared to the exact keystrokes that you use to log into (and dial out of) your unique dataswitch.

Use the up and down arrow keys to select your choice in **<F6>** and press **<Enter>**. If, while you are still in the telephone number field, you find that you have made a mistake in your selection, pressing **<Esc>** will clear the field. If you realize your mistake after your have continued to the next field, use the arrow keys to return to the telephone number field and the **<Del>** key to remove the incorrect character. Information about additional special phone characters can be found under CALL TABLE earlier in this section.

<F7> Print Call Table

When you press **<F7>** Carbon Copy PLUS will print a copy of your Call Table showing all the entries you have made.

<F9> Help

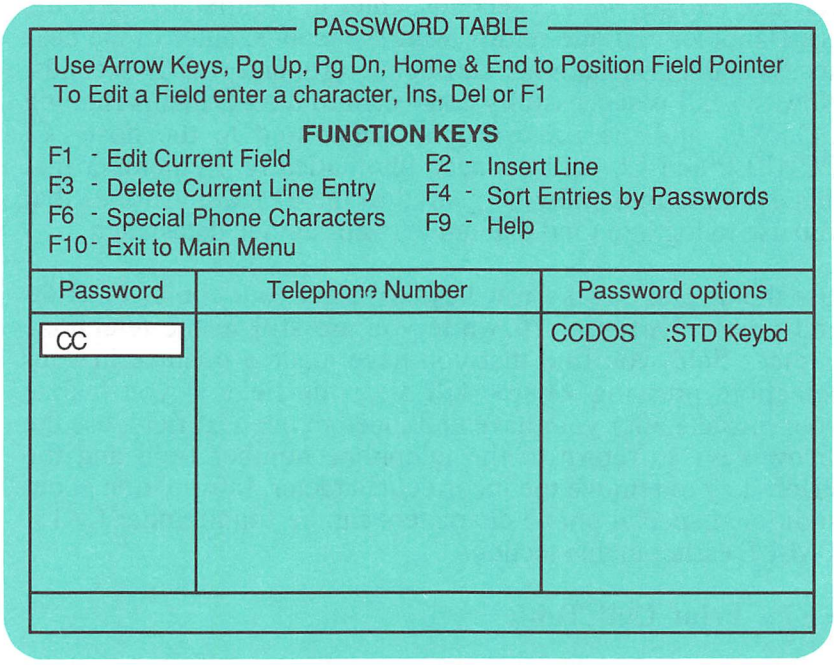
When you press **<F9>**, a screen with additional field editing information will appear. This screen contains specific information regarding field entries in the Call Table.

<F10> Exit to Main Menu

This key will return you back to the Carbon Copy PLUS System Parameters screen.

Password Table

Under "Password Table" in the Menu List you will find option "4 — Password Table." Choose 4 to access the Password Table. You may enter up to 63 standard passwords plus a special security password explained later in this chapter.



This is where you enter passwords and telephone numbers that will be used during operation of Carbon Copy PLUS. The remote user will need to know the appropriate passwords in

order to set up his Call Table with passwords for CCHELP to access the CC side. The host PC (CC side) can specify up to **64** valid passwords. The list of passwords you select to use when operating as the host PC (CC) are shown in the Password Table.

An added feature of the passwords is that you can limit CCDOS, the command interpreter for CCHELP and Carbon Copy PLUS. The Password Table will automatically default to the CCDOS setting. By choosing the **Limited CCDOS** option, the remote PC can access ONLY the host PC's directory which is active when file transfer is initiated. The remote PC cannot access other directories, delete or rename files, write over existing files or access hidden files. Choosing the **No CCDOS** option will prevent the remote user from performing CCDOS file transfer at all during the session. Therefore, if CCHELP users call in using a **No CCDOS** password, they will not even see the "File Transfer, <F5>" option in the control screen.

> **NOTE:** When users choose background file transfers, the **Limited CCDOS** and **No CCDOS** options react the same way. Both disallow access to the host PC. The remote user will receive an error message stating that access has been denied. Therefore, background file transfer mode will not allow any access to the host system if **No CCDOS** or **Limited CCDOS** is set as a password limitation. **Full CCDOS** privileges must be selected for background file transfer.

The STD keyboard is the second element of the options. Standard keyboard is the default setting. (If you are using an Advanced keyboard, see Appendix B for more information on keyboard options.)

MOVING AROUND THE PASSWORD TABLE

<Arrow Keys> The arrow keys are used to move from one field to another, up or down, left or right.

<Enter> The **<Enter>** key will allow you to move from one field to the next, but only in a forward manner.

<Pg Up>	takes you to the beginning of the previous page.
<Pg Dn>	takes you to the beginning of the next page.
<Home>	takes you to the beginning of the Password Table.
<End>	takes you to the last line of the Password Table.

EDITING THE PASSWORD TABLE

<Del>	will delete the character the cursor is on.
<Ins>	will insert spaces between character.
<Enter>	You must also press **<Enter>** when you have completed editing a field.

The Password Table is completely menu-driven. Across the top of the screen you will see definitions for various functions that can be performed. These are described below:

<F1> Edit Current Field

Press this key when you have moved the cursor to the field you wish to edit. If it is a blank field or you want to replace what is currently in the field, just begin to type. Press **<ESC>** if you wish to revert to the previous information in this field. (Do this before you press **<Enter>**!)

<F2> Insert Line

Press **<F2>** if you wish to insert a line on the Password Table. All the lines from the cursor down will move down one line and a new blank line will appear. The cursor will now be positioned on the new line.

> **NOTE**: A default password of "CC" is automatically assigned. You should assign your own password as soon as possible.

<F3> Delete Current Line Entry

Press **<F3>** to remove the line your cursor is on. The cursor must be in the "Name" field to use the **<F3>** key.

<F4> Sort Entries by Passwords

By choosing the **<F4>** option, Carbon Copy PLUS will automatically sort all the entries you have made in the Password Table alphabetically by password.

<F6> Special Phone Characters

If you need to add optional special characters to the telephone number field, press **<F6>**. Here your choices are **Carriage Return**, **Delay of .5 Second**, **Line Feed** or **Wait for Carrier Detect**. If you need to dial in and out of dataswitches automatically, the [character should be after the modem number. Use the up and down arrow keys to select your choice and press **<Enter>**. If, while you are still in the telephone number field, you find that you have made a mistake in your selection, pressing **<Esc>** will clear the field. If you realize your mistake after you have continued to the next field, use the cursor keys to return to the telephone number field, press **<F1>** and use your cursor keys to move to the character you wish to change. Then press the **<Del>** key to remove the incorrect character. Information about additional special phone characters and a comprehensive example of dialing in and out of a dataswitch can be found under CALL TABLE earlier in this chapter. These characters are not required for most modem connections.

<F9> Help

When you press **<F9>**, a screen with additional field editing information will appear. This screen contains specific information regarding field entries in the Call Table.

<F10> Exit to Main Menu

This key will return you back to the Carbon Copy PLUS System Parameters screen.

NOTE: It is important to remember that passwords are important pieces of information. **Take special care to keep these passwords SECRET.**

Security and Your Passwords

Carbon Copy PLUS offers enhanced security features. These are performed according to settings with the "Optional Configuration Parameters" and through the "Password Table" within CCINSTAL. These security options allow you added protection against illegal file manipulation and unauthorized access; they also control directory movement on your system.

For security reasons, you may wish to keep your password settings secret. You can do this by selecting **4—Password Table** and typing a tilde ("~"), followed by a password. For example:

~ password <Enter>

This password will be listed as the last entry on the Password Table. The next time you run CCINSTAL, the "Password Table" and "Call Table" menu names will not appear on the "Carbon Copy PLUS System Parameters" screen. In order to see your selected passwords again, you must type the tilde and the password, and press **<Enter>** while on the "Carbon Copy PLUS System Parameters" screen.

Leaving CCINSTAL

Quit ("Q") and Exit ("X")

If you want to leave this screen and save your changes, use the **X** for **eXit** command. If you do not wish to save any changes you have made, use the **Q** command. When you do this, the question "Do you wish to QUIT (Yes or No)?" will appear at the bottom of the screen. Type the first letter of whichever choice is appropriate and the program will either return to the DOS screen (for "Yes") or ask you for a letter selection of the parameters

screen. Each time you use **X** to exit from this screen, the configuration files CC30.CFG and MM30.CFG are updated with your new parameters.

Exit from the CCINSTAL configuration screen by pressing **<X>**. This will SAVE your settings.

> **NOTE**: If you are setting up a configuration for running CCHELP and CC within the same directory, please consult Appendix B.

The above steps will create the configuration files called CC30.CFG and MM30.CFG. These files will hold important information concerning the computer system you are using.

Changing CCINSTAL Settings While CC Is Memory Resident — ("Online CCINSTAL")

Once Carbon Copy PLUS is loaded in memory, you can change your CCINSTAL settings online. To do this, press **<F10>** "Return to Application," then type:

CCINSTAL <Enter>

This will bring you to the "Carbon Copy PLUS System Parameters" Screen, where you will be advised that CC is presently running. Currently you can change the following settings while CC is running:

General Parameters:

H Novice/Advanced

Optional Configuration Parameters

B Answer Ring Count
C Redial Attempts
D Redial Delay
F Startup Keystrokes
G Dial Time Out

M Inactivity Time-Out
N Chat Keystrokes

You can also change:

General Parameters

A Comm Port Address
B Baud Rate
C Modem

Menu List

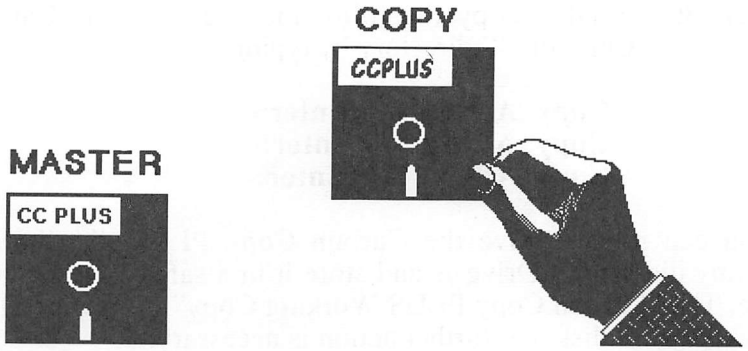
3 Call Table
4 Password Table

When you type **X** to SAVE your system settings, you will be asked if you are sure you want to update the presently running CC. Choosing **Yes** will update CC in memory. Choosing **No** will update CCINSTAL for future use but it will not update the CC in memory. Changing the modem parameters (COMM Port, Baud Rate and Modem Type) in ONLINE CCINSTAL will result in a reconfiguration of the modem. Therefore, if you are connected (CCHELP and CC), you will also be asked whether you are sure you want to continue. Choosing **Yes** will disconnect you and reset the line; choosing **No** will not update the CC that is running, but it will update CCINSTAL for future use.

Making A Working Copy

The next series of steps create a working copy of the Carbon Copy PLUS software. Follow the steps as they are explained. **DO NOT USE THE DISK COPY UTILITY TO MAKE THIS COPY!**

IMPORTANT: Do NOT copy the Carbon Copy PLUS master diskette without first running CCSTART as described in the previous section.



FLOPPY DISK SYSTEM

Step 1: Make sure that the Carbon Copy PLUS Master distribution diskette is still in Drive A. Then place a blank, formatted diskette in Drive B.

Step 2: At the **A:>** prompt, type:

Copy *.EXE B: <Enter>
Copy *.DSS B: <Enter>
Copy *.CFG B: <Enter>

You can now remove the Carbon Copy PLUS distribution floppy diskette in Drive A and store it in a safe place for later use. Remove the diskette in Drive B and label it "Carbon Copy PLUS Working Copy." This is the diskette you will use for everyday use. You may wish to make a backup copy of your Utility diskette. This will be used for optional utilities.

HARD DISK SYSTEM

Step 1: To copy to your hard disk, at the **C:>** prompt, type:

MKDIR \CCPLUS

Step 2: Then change your current directory to the new Carbon Copy PLUS directory by typing:

CHDIR \CCPLUS

Step 3: Finally, copy the following files into the Carbon Copy PLUS directory by typing:

Copy A:*.EXE <Enter>
Copy A:*.DSS <Enter>
Copy A:*.CFG <Enter>

You can now remove the Carbon Copy PLUS distribution floppy diskette in Drive A and store it in a safe place for later use. The "Carbon Copy PLUS Working Copy" is now installed on your hard disk. No further action is necessary.

Additional files on the Master diskette are optional, not mandatory. You may wish to copy the entire contents of the Master diskette and the Utility diskette to take advantage of the optional utilities.

Installing Your Hardware

This section provides basic hardware installation instructions. For more detailed information concerning the modem you are using, refer to its user's guide.

The following steps explain how to connect your modem to your PC.

Step 1: Make sure you have the appropriate cable to connect your PC to your modem if one is required. (Not required with internal modems — other than telephone cables. See Appendix A or your modem's user's guide.)

Step 2: Connect the RS-232 cable from the serial port on your PC (COM1, COM2, COM3, COM4) to your modem (external modem only). Use the port that you specified during your installation.

Step 3: Connect an RS-232 cable from the host PC to its modem (external only).

When using an external modem, make sure that the IRQ jumper on the serial port board is set to the COMM port you are using.

NOTE: If possible, the signals Data Set Ready (DSR) and Data Terminal Ready (DTR) should be enabled. DSR is the circuit used to signal the DTE device (the PC) that the DCE device (the modem) is up and working. DTR is the circuit used to tell the DCE device that the DTE device is up and working. This allows Carbon Copy PLUS to automatically determine when the connection is broken.

Additional Security Features

Carbon Copy PLUS provides an an additional utility which will SECURE your communications from illegitimate access. This program is CCSECURE. It allows you to set encryption codes which cause all Carbon Copy PLUS transmissions to be data encrypted.

Due to the limitation this places on communications with other Carbon Copy PLUS users, it is necessary to understand the effects of changing the encryption code. It is also very important to decide if you are interested in this extra security. If the code is set to any value other than zero, then all Carbon Copy PLUS users' systems that you need to access must have EXACTLY the same encryption code as your system.

You will have to copy the file CCSECURE.EXE from your Master diskette to any Carbon Copy PLUS system for which you wish to change the encryption codes. CCSECURE is a simple, menu driven program. Simply follow the directions shown on the screen to set your encryption codes.

IMPORTANT: You must have EXACTLY the same encryption code as any other users with whom you wish to communicate. If the code is changed on one side but not on the other, communications will fail.

If you have forgotten your code, you can reset it by deleting your CC30.CFG and MM30.CFG files and then rerunning CCINSTAL. This will reset the codes to zero.

Where To Go From Here

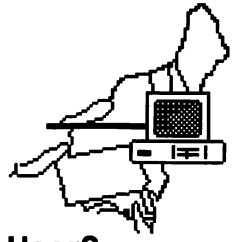
If you correctly completed the steps presented in this chapter, you are ready to begin using Carbon Copy PLUS. It might be a good idea to review this chapter again before moving on. Make sure you have:

- Used CCINSTAL for both the remote and host copies of Carbon Copy PLUS to create CC30.CFG and MM30.CFG.
- Set the Baud Rate setting for both PCs to the same value, (unless your modem will "Auto-baud" as described in Appendix B).
- Set the host PC's modem to "Auto Answer."
- Used the correct cable when connecting your modems to your PCs. When using various modems, make sure the telephone cable is in "line" jack, not "telephone" jack.

When you're ready, turn to the next chapter for instructions on how to use Carbon Copy PLUS.

CHAPTER 3

Using Carbon Copy PLUS



What is the Host User?

The host user can be anyone who needs:

1. assistance on their PC
2. testing of a problem on their PC
3. files transferred to and from their PC
4. to allow remote control of their PC

The host user allows the remote PC to completely utilize the host PC system. In order to use Carbon Copy PLUS, make sure that both host (CC side) and remote (CCHELP side) users have a copy of the software. The serial number of the host user's software must be different from the serial number of the remote user's software. This will ensure that the host user and remote user's PCs can "talk" to each other.

Before calling the host user, make sure the following has been completed:

- The host user has a copy of the Carbon Copy PLUS software with at least the following files present:

  CC.EXE CC30.CFG MM30.CFG

  CC30.CFG and MM30.CFG must contain the appropriate settings for the computer system you are using. See Chapter 2, "Installation and Setup." In particular, the NORMAL MODEM MODE must be set to AUTO ANSWER and you must have entered at least one password.

- The host user's modem must be turned ON and Carbon Copy PLUS must be run before calling.

  NOTE: You must turn ON your modem before running Carbon Copy PLUS. If your modem was OFF, you must use **<F8> option 1** to reinitialize your COMM port.

Advanced Mode

RUNNING CARBON COPY PLUS

Host User (CC)

There are two ways to make sure that Carbon Copy PLUS is up and running on the host user's PC:

Add the command "CC" to an AUTOEXEC.BAT command file. (For additional information on creating and using AUTOEXEC.BAT file, refer to your IBM DOS manual.) This will start Carbon Copy PLUS each time the host PC is booted using DOS.

OR

For a floppy disk system:

With the Carbon Copy PLUS working copy diskette in Drive A, at the **A:>** prompt type:

CC <Enter>

For a hard disk system:

Carbon Copy PLUS may be copied to the hard disk first. If this has been done, type:

CD\CCPLUS

At the **C:>** prompt, type:

CC <Enter>

Remote User (CCHELP)

Once the host user has Carbon Copy PLUS running, the remote user can place a call by doing the following:

For a floppy disk system:

Step 1: Place the Carbon Copy PLUS working diskette in Drive A.

Step 2: At the **A:>** prompt, type:

CCHELP <Enter>

For a hard disk system:

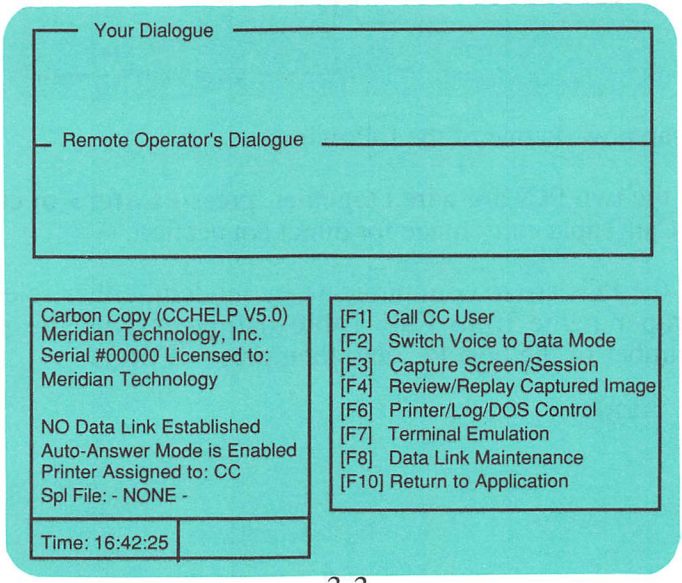
Step 1: At the **C:>** prompt, type:

CD\CCPLUS

Step 2: At the **C:>** prompt, type:

CCHELP <Enter>

The following screen will appear:

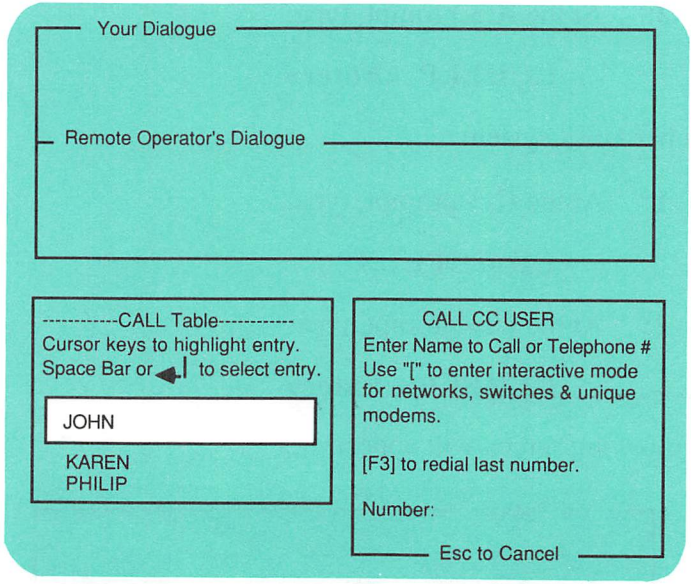


The Control Screen is a set of three windows and will appear on top of whatever was on the PC's screen when you entered CCHELP. (More detailed information concerning the Control Screen's options is given later in this chapter.)

To contact the host PC:

Step 3: Press **<F1>**

You will then see the screen configuration shown below:



You can now do one of the following:

- If the two PCs are wired together, press **<Enter>** or choose a Call Table entry made for direct connection.
- If the PCs are to communicate by modem, either select the proper name from Call Table listing or type the phone number of the host PC, and then press **<Enter>**.

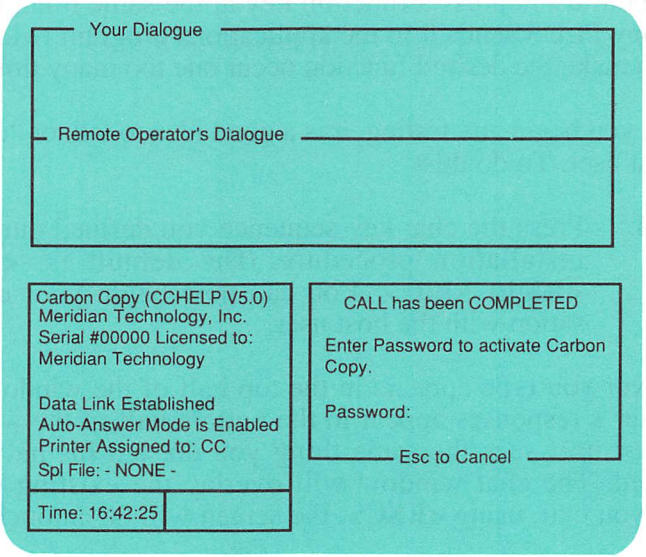
—or—

- If you wish to pulse dial, enter "dash P" ("-P") before the phone number.

If you have defined a name for the host PC's phone number in the Call Table (see Chapter 2, "Installation and Setup"), use the arrow keys to highlight the name you want to call and press **<Enter>**.

The Call Table entries can be selected by pressing a letter that coincides with the name. For instance, pressing **<J>** will immediately select all the entries beginning with "J." Then you may use the cursor to choose which entry you want. Pressing the **<O>** key now instead of the cursor will select all entries beginning with "JO" and so on.

After performing one of the above steps, and after you make contact with the host user's PC, Carbon Copy PLUS will prompt you to enter a password by displaying the following screen:



The password you type must match one of the valid passwords that was programmed into the host PC's copy of CC30.CFG. If you do not gain access after entering the password, enter several

carriage returns and then try the password again. Remember, Carbon Copy PLUS comes with the password "CC" already installed. Try CC **<Enter>** before giving up.

> **NOTE:** Make sure the host user has entered passwords into the Password Table before running CC.

After you have entered a valid password, the Control Screen goes away and the remote PC's screen shows exactly what is showing on the host PC's screen. Both the keyboards and screens are now linked.

> **IMPORTANT**: Keep in mind that in a joint session under Carbon Copy PLUS, users at both PCs can type on the keyboard at any time, unless one of the keyboards has been disabled. To use Carbon Copy PLUS productively, users may want to take turns or agree beforehand who will do the typing.
>
> If both users press a function key at the same time, Carbon Copy PLUS sends it to the applications program twice. This can make the desired function occur one too many times.

Before you begin any testing, it is a good idea to talk or "chat" to the host user. To do this:

Step 4: Press the chat key sequence you defined during the installation procedure. The default is: **<Ctrl> <Right Shift>**. You can now begin your conversation with the host user.

Whatever you type appears in the top half of the window. The host user's responses appear in the bottom half of the window. The host user sees the same thing you do, but his halves are switched. The chat window will overlay the existing screen. When you exit, using **<ESC>**, the screen will be untouched.

After you have decided what you are going to do, either user presses **<F9>** or **<F10>**. This makes the windows of the Control Screen disappear. Now either user can type commands

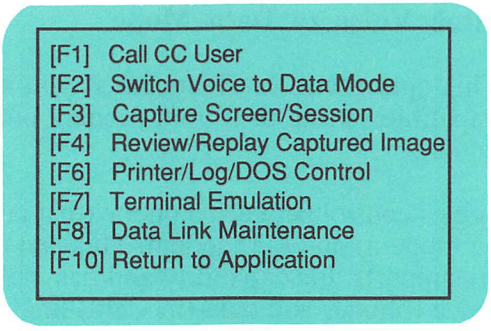
to the applications software to produce whatever condition you are investigating.

> **NOTE**: Whenever you want to return to the Control Screen to "chat" with the other user, simply press the startup key sequence. This can be done by either the remote or host user. Note that the remote user's (CCHELP) startup key strokes will be overridden by the host (CC) user's key strokes.

The following section describes the Control Screen and its options in more detail.

Using The Control Screen

Carbon Copy PLUS's Control Screen is where you control the actions of both the remote and host PC and software. The bottom right hand side of the screen presents a list of PC function keys and options related to those keys. (Remember that the **<F5>** option will only appear after CCHELP and CC have connected. The **<F7>** option does not appear after they are connected. Therefore, the example shown below does not have a "Data Link Established.")



The following explains each key and its function:

<F1> — Call CC User

When you press **<F1>**, Carbon Copy PLUS will ask you for the name or phone number of the user you want to call. When

<F1> is pressed, you will see a second window displaying Call Table Entries. You can move to the desired entry by using the arrow keys or depress the first letter of the entry, then press **<Enter>** or **<Space Bar>** to select it.

You also have the option of pressing **<F3>** from the **<F1>** screen. By doing this you are telling Carbon Copy PLUS to automatically redial the last phone number you called. This feature will display the number but not the name of the site you are calling.

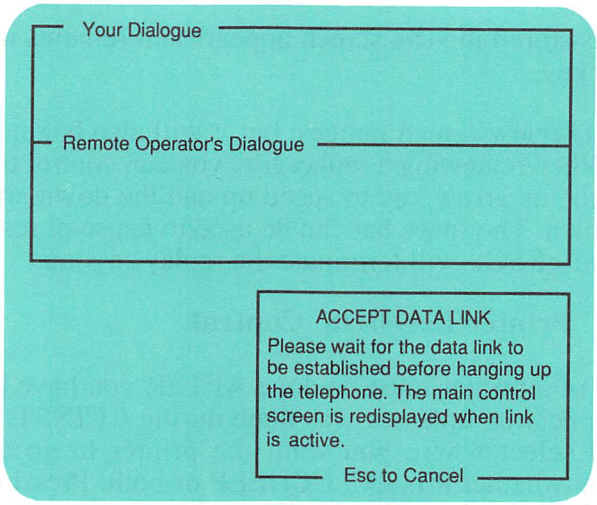
You can talk directly to your modem or directly to your dataswitch when the **<[>** key is depressed and Carbon Copy PLUS is put into interactive mode. In this mode, you may communicate to networks, switches and unique modems. **<Alt><B>** can be used to send a 200 ms break to the COMM port. Also in this mode, you may hit Carriage Return twice and you will be talking directly to your modem or out of your COMM port to a dataswitch. A call may also be placed with CC or CCHELP in this mode. You can turn echo on, so that you can see the command you are typing to the modem, by typing **ATE1 <Enter>**. When CCHELP is placing a call in this mode, the password is entered after attaching to the host system and Carbon Copy PLUS will resume normal operation.

<F2> — Switch Voice to Data Mode

> **NOTE**: This option will NOT appear if you are using the Hayes compatible setting or if your modem only has a data line connection.

This option toggles control between a phone (that is plugged into the back of the modem) and the modem. This can only be done if your modem supports this capability and has a plug available for both the voice (phone) and data (modem) lines. This option is useful if you need to dial a central number and then request an extension. After the operator dials the extension and as soon as you hear answertone, switch to data mode.

When you select **<F2>** from the Control Screen, you see the screen shown on the next page. **(Press <ALT><F2> instead if you are running Carbon Copy Plus version 5.1 and you need to connect with a PC running version 4.0 or 3.0.)**



<F3> — Capture Screen/Session

<F3> will make a copy of the current application software's screen. When **<F3>** is pressed, Carbon Copy PLUS asks you for a filename, creates the file, and then puts the screen image into that file. Carbon Copy PLUS knows if the screen is a graphic image and saves/restores it appropriately.

If you enter a "**/P**" after the filename, Carbon Copy PLUS's replay mode is activated. In replay mode, Carbon Copy PLUS will record the complete session into the specified file. This replay "movie" option can be very useful during a support/consulting session. It allows you to review the session at a later time without adding to modem connect charges. To end the session recording, enter **<F3>** again; otherwise it will automatically end when the Carbon Copy PLUS session is complete.

> **NOTE:** Both **<F3>** and **<F4>** only affect the PC from which the function was initiated. The Session and Replay Options are used only on the remote PC (CCHELP).

<F4> — Review/Replay Captured Image

To view a screen image that you saved by using **<F3>**, select **<F4>** from the Control Screen. Enter the name of the file the

image was stored in. The screen appears and remains until you press any key.

<F4> will review screen images, but it will also begin a replay session. When reviewing a replay file, you can control the speed by using the up arrow key to speed up and the down arrow key to slow down. The space bar can be used to pause or resume the replay, and **<ESC>** will terminate the replay session.

<F6> Printer/Log/DOS Control

Selection of a printer must be done AFTER you have made an online connection unless it was done during CCINSTAL. You must still select where you want the printer to go after the connection,whether it is CC, CCHELP or both. Pressing **<F6>** provides the following control options:

1 — Enter Log File Data (Allows you to enter data for comment purposes only. This option allows you to enter data relevant to the session you are in; it is purely for comments. To view the information in this file at a later time, enter "CCLOG" at the DOS prompt. See the section "Using a Log File" at the end of this chapter for details.)

2 — Printer to CC (Allows printing at the host site)

3 — Printer to CCHELP (Allows printing at the remote site)

4 — Printer to Both (Allows printing at both host and remote sites)

5 — Open a Print Spool File (Creates a file into which any information from the remote user will be placed, for printing at a later time. This option will close your current spool file and open a new one; if you tell Carbon Copy PLUS the name of a file that already exists, you will be asked if you wish to overwrite the file, which will delete the old data contained in the file, or extend the file, which will add data to the end of the file. To abort this option, press **<ESC>**.)

6 — Close Current Spool File (Closes the current spool file and allows you the option of printing the file at this time.)

7 — Print/DeSpool Function (Allows you to print data directly as it is received from the remote PC; no file is created to save the data you are printing. You have "point and choose" capability to choose the file to be despooled, by using the cursor keys to highlight the correct file from those listed. If you choose this option, the direct printing will preempt any file currently being printed.)

8 — Terminate Print Requests (Allows you to stop the printing operation. This option returns to the beginning of the spool file for the next printing.)

9 — Execute a DOS Command

Option "**5**" (Open a Print Spool File) allows you to create a file that will contain the files you want printed. Selecting option "**7**" (Print/DeSpool Function) will send this file to the specified printer.

> **NOTE:** For the CCHELP user, options "**5**" and "**7**" also display a list of existing spool files. This will display all entries in the directory with the extension of "SPL." You then can move the cursor to point at the appropriate file and select it by pressing **<Enter>**. You may also type in the name of the spool file (e.g. "dig.spl") instead of selecting "digger" which was shown in the point and choose option.

Option "**6**" (Close Current Spool File) closes the file you opened when you chose option "**5**." Option "**8**" (Terminate Print Requests) terminates all print requests.

Option "**9**" (Execute a DOS Command) allows you to enter to the DOS prompt and still maintain the data link. This option is nicknamed "QUICKDOS" because it allows you quickly to access your own DOS without exiting from CCHELP. To return back to Carbon Copy PLUS type "EXIT". On the CCHELP side, this option allows the file "COMMAND.COM" to be pathed from all locations on your system.

NOTE: Within QUICKDOS you are not allowed to run communications software or memory resident programs.

<F7> — Terminal Emulation

The **<F7>** key only works on the CCHELP side before connecting to a host system. Pressing **<F7>** will put the user in Terminal Emulation mode as described in the Carbon Copy PLUS Terminal Emulator User's Manual, Section II.

<F8> — Data Link Maintenance

Pressing **<F8>** provides the Data Link options shown below. The options toggle between **Enable** and **Disable**. If the options show "Disable," then the current state is enabled. By toggling this option, you will be disabling it.

CCHELP user sees the following options:

1 — Reset The Data Link
2 — Data Link Diagnostics
3 — DISABLE Auto-Answer
4 — unused
5 — DISABLE Remote User Input
6 — DISABLE Full Graphics
7 — DISABLE Synchronized Disp.
8 — ENABLE CC Reboot on Exit
9 — DISABLE Remote User Display

CC user sees the following options:

1 — Reset the Data Link
2 — Data Link Diagnostics
3 — DISABLE Auto--Answer
4 — DISABLE Carbon Copy
5 — DISABLE Remote User Input
6 — DISABLE Full Graphics
7 — DISABLE Synchronized Disp.
8 — ENABLE CC Reboot on Exit
9 — DISABLE Remote User Display

1 Resets your modem without having to enter any modem commands or having to turn it OFF. Complete initialization of your modem will be done only when you first run CC or CCHELP. The modem will not be completely initialized when you disconnect from a remote site, thus saving you anywhere from 2 to 15 seconds. This option is used if your modem was off when running CC or CCHELP.

2 Performs data link diagnostics on your phone connection. DTR and RTS states will be shown. Use the left bracket ([) to toggle to DTR and the right bracket (]) to toggle to RTS. You can enter standard AT commands to your modem from here. You will be talking directly to your modem.

3 Disables Auto-Answer on the user's modem.

4 Disables Carbon Copy PLUS. This means no incoming calls will be allowed, releasing CC from the COMM port and allowing other communications software to be used on the same port. This disabling may also be done through a batch file that uses CCREMOVE D. To enable Carbon Copy again, press **<F8>** and then select option **1—Reset the Data Link**.

5 Disables the remote user's keyboard except when using "chat" mode. The remote user will have a reverse video message in the left hand corner of the screen telling him he is disabled.

6 Provides faster graphics transfer because all pixels are not used to draw the graph.

7 Gives you more speed during the connection because the remote and host PCs' screens are not waiting for each other to provide synchronous screen updates. The screens will be identical only when the remote user stops receiving data from the host.

8 Enables the host PC reboot on exit option. It defaults to **After 5 mins**. With this option, the host (CC) PC will reboot five minutes after the Carbon Copy PLUS session has ended.

9 Disables the remote user's display. Both CC and CCHELP can disable the display. The screen may flash briefly during a DOS call but will blank completely when the DOS call is finished.

<F10> — Return to Application

<F10> will remove the Control Screen windows and return you to the applications software you were running.

Novice Mode

RUNNING CARBON COPY PLUS

Host User (CC)

There are two ways to make sure that Carbon Copy PLUS is up and running on the host user's PC:

Add the command "CC" to an AUTOEXEC.BAT command file. (For additional information on creating and using the AUTOEXEC.BAT file, refer to your IBM DOS manual.) This will start Carbon Copy PLUS each time the host PC is booted using DOS.

OR

For a floppy disk system:

Step 1: Put the Carbon Copy PLUS working diskette in Drive A.

Step 2: At the **A:>** prompt, type:

CC <Enter>

For a hard disk system:

Step 1: At the **C:>** prompt, type:

CD\CCPLUS

Step 2: At the **C:>** prompt, type:

CC <Enter>

Remote User (CCHELP)

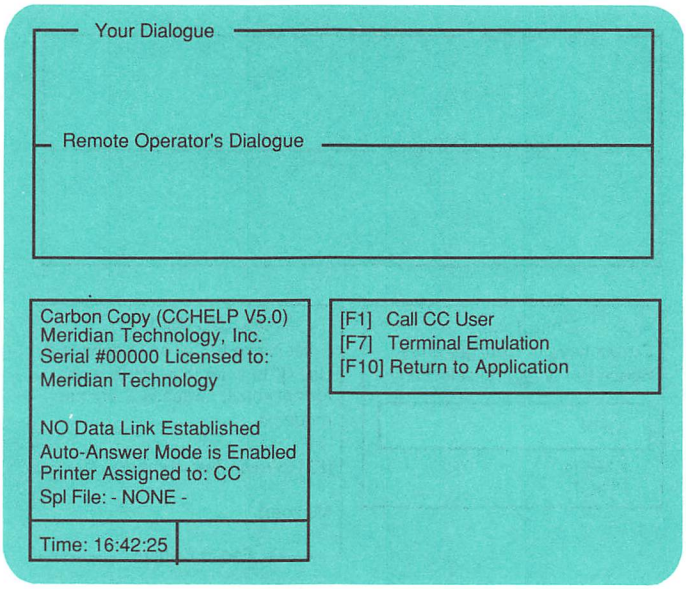
For the novice user, both the control screen and the steps available have been simplified for ease of use. If you chose **Novice** when you ran CCINSTAL, you can place a call, once the host user has Carbon Copy PLUS running, by doing the following:

For a floppy disk system:

Step 1: Place the Carbon Copy PLUS working diskette in Drive A.

Step 2: At the **A:>** prompt, type:

CCHELP <Enter>



For a hard disk system:

Step 1: At the **C:>** prompt, type:

CD\CCPLUS

Step 2: At the **C:>** prompt, type:

CCHELP <Enter>

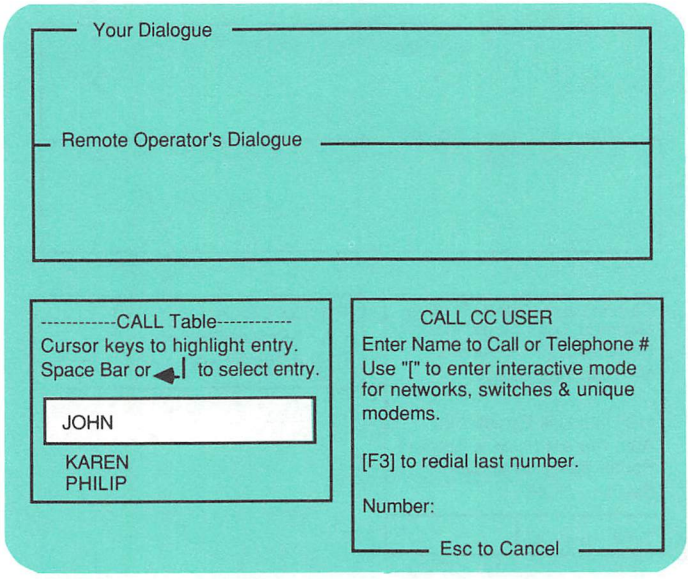
The Control Screen shown on the previous page will appear.

The Control Screen is a set of three windows and will replace whatever was on the PC's screen when you entered CCHELP. (More detailed information concerning the Control Screen's options is given below.)

To contact the host PC:

Step 3: Press **<F1>**

You will then see the screen configuration shown below:



You can now do one of the following:

- If the two PCs are wired together, press **<Enter>** or choose a Call Table entry made for direct connection.

- If the PCs are to communicate by modem, either select the proper name from Call Table listing or type the phone number of the host PC, and then press **<Enter>**.

  —or—

- If you wish to pulse dial, enter "dash P" ("—P") before the phone number.

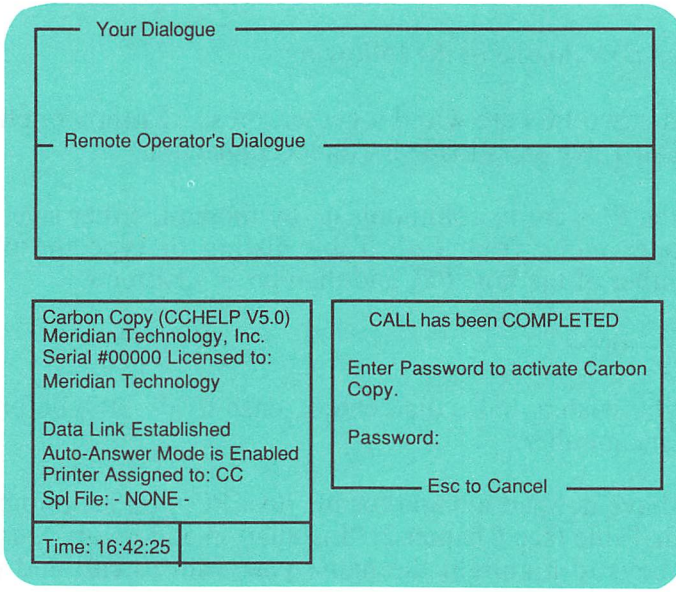
If you have defined a name for the host PC's phone number in the Call Table (see Chapter 2, "Installation and Setup"), use the arrow keys to highlight the name you want to call and press **<Enter>**.

The Call Table entries can be selected by pressing a letter that coincides with the name. For instance, pressing **<J>** will immediately select all the entries beginning with "J." Then you may use the cursor to choose which entry you want. Pressing the **<O>** key now instead of the cursor will select all entries beginning with "JO" and so on.

After performing one of the above steps, and after you make contact with the host user's PC, Carbon Copy PLUS will prompt you to enter a password by displaying the screen shown on the next page.

The password you type must match one of the valid passwords that was programmed into the host PC's copy of CC30.CFG. If you do not gain access after entering the password, enter several carriage returns, then enter the password again. Remember, Carbon Copy PLUS comes with the password "CC" already installed. Try **CC <Enter>** before giving up.

> **NOTE:** Make sure the host user has entered passwords into the Password Table before running CC.



After you have entered a valid password, the Control Screen goes away and the remote PC's screen shows exactly what is showing on the host PC's screen. Both the keyboards and screens are now linked.

IMPORTANT: Keep in mind that in a joint session under Carbon Copy PLUS, users at both PCs can type on the keyboard at any time, unless one of the keyboards has been disabled. To use Carbon Copy PLUS productively, users may want to take turns or agree beforehand who will do the typing.

If both users press a function key at the same time, Carbon Copy PLUS sends it to the applications program twice. This can make the desired function occur one too many times.

Before you begin any testing, it is a good idea to talk or "chat" to the host user. To do this:

Step 4: Press the chat key sequence you defined during the installation procedure. The default is: **<Ctrl> <Right Shift>**. You can now begin your conversation with the host user.

Whatever you type appears in the top half of the window. The host user's responses appear in the bottom half of the window. The host user sees the same thing you do, but his halves are switched. The chat window will overlay the existing screen. When you exit, using **<ESC>**, the screen will be be returned to the state it was in before you entered chat mode.

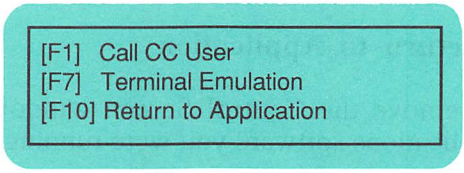
After you have decided what you are going to do, either user presses **<F9>** or **<F10>**. This makes the windows of the Control Screen disappear. Now either user can type commands to the applications software to produce whatever condition you are investigating.

> **NOTE**: Whenever you want to return to the Control Screen to "chat" with the other user, simply press the startup key sequence. This can be done by either the remote or host user. Note that the remote user's (CCHELP) startup key strokes will be overridden by the host (CC) user's key strokes.

The following section describes the Control Screen and its options in more detail.

USING THE CONTROL SCREEN

Carbon Copy PLUS's Control Screen is where you control the actions of both the remote and host PC and software. The bottom right hand side of the screen presents a list of PC function keys and options related to those keys.



The following explains each key and its function:

<F1> — Call CC User

When you press **<F1>**, Carbon Copy PLUS will ask you for the name or phone number of the user you want to call. When **<F1>** is pressed, you will see a second window displaying Call

Table Entries. You can move to the desired entry by using the arrow keys or depress the first letter of the entry, then press **<Enter>** or **<Space Bar>** to select it.

You also have the option of pressing **<F3>** from the **<F1>** screen. By doing this you are telling Carbon Copy PLUS to automatically redial the last phone number you called. This feature will display the number but not the name of the site you are calling.

You can talk directly to your modem or directly to your dataswitch when the "[" is depressed and Carbon Copy PLUS is put into interactive mode. In this mode, you may communicate to networks, switches and unique modems. **<Alt><B>** can be used to send a 200 ms break to the COMM port. Also in this mode, you may hit Carriage Return twice and you will be talking directly to your modem or out of your COMM port to a dataswitch. A call may also be placed with CC or CCHELP in this mode. You can turn echo on, so that you can see the command you are typing to the modem, by typing **ATE1 <Enter>**. When CCHELP is placing a call in this mode, the password is entered after attaching to the host system and Carbon Copy PLUS will resume normal operation.

<F7> — Terminal Emulation

<F7> only works on the CCHELP side before connecting to a host system. Pressing **<F7>** will put the user in Terminal Emulation mode as described in the Carbon Copy PLUS Terminal Emulator User's Manual, Section II.

<F10> — Return to Application

<F10> will remove the Control Screen windows and return you to the applications software you were running.

Removing Carbon Copy PLUS from Memory

Another advanced feature of Carbon Copy PLUS is your ability remove it from memory on the CC side without rebooting your

system. You may wish to do this, for example, to run another communications package. In order for this feature to work, CC must be the last program loaded into memory so that Carbon Copy PLUS can find it easily. From the Control Screen, press **<F10> Return to Application**. At the DOS prompt, type:

CCREMOVE

You will then see a screen asking if you wish to remove CC from memory. If you do, type **Y** to deinstall CC. If you do not wish to remove CC from memory, type **N**. You will not be able to remove CC from memory if a connection is established.

An advanced user may choose to deinstall CC in one step. At the DOS prompt, type:

CCREMOVE D

This will automatically remove CC from memory without verifying it.

Terminating The Session

To end the Carbon Copy PLUS session completely and break the connection between the two PCs, either user presses **<F1>** while at the Control Screen.

If you are running an applications program and wish to log off while allowing the host software to continue to operate, you may end the session by pressing **<F1>**.

> **NOTE**: If you are the remote user and you are running a large batch processing job on the host PC, you may enter **<F1>** to exit Carbon Copy PLUS. This will **NOT** cancel the batch job running on the host PC. You may log in again at any time to monitor the job's progress.

Removing "Garbage" From the Remote Screen

Occasionally, in noisy communications environments, the remote screen could display garbled data. If this happens, the remote user should press **<F9>** from the Control Screen. Like **<F10>**, **<F9>** makes the Control Screen go away, resuming the joint session, but **<F9>** first redraws the remote screen. In these cases, it is suggested that you use Option H in CCINSTAL's CC Optional Configuration Parameters menu to turn on "Keystroke Processing." If you are experiencing screen problems using error-correcting modems, read Appendix F to learn how to force error-checking.

Displaying Graphic Images

Carbon Copy PLUS's interactive graphics capability allows you to update, save and send graphic images from one PC to another.

Carbon Copy PLUS supports:

EGA
VGA
CGA
HERCules
PS/2 Model 30 extended CGA

All of the above graphics cards can be used in any combination within CC or CCHELP. The two systems (CC and CCHELP) do not need to have the same graphics cards installed to utilize Carbon Copy PLUS's interactive graphics capability.

Using a Log File

CC and CCHELP both provide a log file which records part or all of the activity that occurs while running Carbon Copy PLUS. In order to use a log file, you must first run CCINSTAL and change the default setting of the **E — Log File** option in the CC and CCHELP Common PARAMETERS screen. The

different selections control how much information you want to include in the log file. See the "Optional Configuration Parameters" section earlier in this chapter to learn how to change the log file settings.

The log file that you enabled in CCINSTAL will automatically open the next time you start CC or CCHELP. If you want to view, print, delete or rename the log file, you must run a separate program called CCLOG. To do this, press **<F10> Return to Application** and go to the DOS level. At the DOS prompt, type:

CCLOG

The Carbon Copy Log File Program screen appears, with the following choices.

N — Name of Log File [Default: CC.LOG]

Select this option if you want to rename the log file. Type the new filename and pathname if desired.

S — Show Log File

This option displays the contents of the log file. The log file will not display properly unless viewed by selecting this option from within CCLOG. If you want to create a displayable text file containing the contents of the log file, select option **W — Write Log File To Output File.**

D — Delete Log File

This option deletes the log file. You are prompted for verification before the file is deleted.

W — Write Log File To Output File

This option copies the contents of the log file to a text file which can be displayed with the DOS TYPE command.

P — Print Log File

This option sends the contents of the log file to the specified printer.

X — Exit

Select this option to leave CCLOG and return to the DOS level.

CHAPTER 4

Using CCDOS

Introduction

CCDOS provides file transfer between CCHELP and CC. This is done with proprietary transfer protocol and data compression specific to Carbon Copy PLUS. CCDOS uses commands similar to those in the DOS operating system's command set. As with the DOS commands, batch files can be used to group commands together.

Invoking CCDOS

The conventions for referring to remote PC (CCHELP) and the host PC (CC) are different only while in CCDOS. Because CCDOS can only be run from the remote PC (CCHELP), this chapter will refer to the remote PC as the local side.The other side (CC) will still be referred to as the host.

To begin using CCDOS, press **<F5>** from the Control Screen after both PCs are successfully linked. While CCDOS is active, the PCs' keyboards and screens are no longer linked, but the PCs still remain connected.

> **NOTE:** If you do not have an **<F5>** option present, you have logged into a host system with a password that does not allow CCDOS.

During the CCHELP session with the host PC, the host side will display each CCDOS command as it is being performed in the remote operator's dialogue.

The local user enters the commands to CCDOS. The host user will receive messages indicating what actions are being taken.

> **NOTE:** A command can be terminated at any time by entering **<Ctrl><Break>**. **<Ctrl><Break>** only aborts

the current command. It does not return you to DOS or the Carbon Copy PLUS joint session. CCDOS can return to the joint session by typing **Exit** or **Bye** at the CCDOS prompt.

File manipulation on the host PC can be limited by the CCDOS option selected at the time the password was entered in the host's Password Table. The "Limited CCDOS" login can only access the directory active at the time the connection was made; the CCHELP PC cannot delete, rename,or overwrite any existing files in the host's directory.

NOTE: The intent of Limited CCDOS is to enhance and enforce the normal network security. If the local (CCHELP) user returns to the DOS prompt and changes directories (when allowed), they will have "Limited CCDOS" on that new directory.

The host user may have selected the "No CCDOS" option. In this case, **<F5>** option for file transfer will not appear for the CCHELP side to select at any time during the session.

In addition to the command being performed, CCDOS may provide other activity information. Any error message will also appear following the command in which the error occurred.

CCDOS also provides status information after a file transfer. The seconds, minutes and effective transfer rate are displayed after the file is transferred. A "barometer" showing percent completed is seen while the transfer is taking place. This "barometer" is shown on the host side as well, so that the host user will also see the percent completed.

If you see an error message displayed on the screen while using CCDOS, take the appropriate action, as given in Appendix F. When an error is detected, CCDOS will retry the operation automatically. If too many errors are detected, you should end the communications session, and recall the host system for a "cleaner" communications line.

When the local user leaves CCDOS (with **Exit** or **Bye**), the Carbon Copy PLUS joint session resumes.

NOTE: When background file transfer is active, **Exit** or **Bye** will disconnect. It will not begin a joint session.

Specifying Files and Device Names

The commands which manipulate files have a specific CCDOS format; most are similar to their DOS counterparts, but must follow the CCDOS conventions; such as device names, and directory name slashes. There are several examples provided with each command's description; however, there are many other uses of the commands. You are not limited to those provided in the examples.

DEVICE NAMES

The device names in CCDOS are different from DOS. To refer to the local PC (CCHELP) disk drive, you must precede the device name by the letter "L". For example:

LA: LB: LC: refer to disk drives A, B, and C on the CCHELP user's PC (the local PC.)

HA: HB: HC: refer to the drives A, B, and C on the CC user's PC (the host PC.)

Note to CARBON COPY alumni: You may still refer to the CC side's device names as RA: RB: and RC .

If a device name is specified as a command, CCDOS changes the default device to be the specified device name. For example:

COMMANDS	RESULTS
HC:	CCDOS changes its default drive to the HOST PC's disk drive C.
DEL test.jnk	CCDOS will delete the file "test.jnk" from the default drive.

CCDOS Directory Commands

You may use both path names and wildcards in CCDOS the same way DOS uses them, except any directory reference in CCDOS must be enclosed by the slash ("\") character at both the beginning and the end. For example:

DIR HC:\test*.*	will give the list of files contained in the "**test**" directory on the host disk drive C.
DIR HC:\test	will list the file "**test**" as it appears in the root directory on disk drive C.

LISTING DIRECTORIES — DIR, DIRECTORY

The **DIR** command will list the file name, size, creation date and time followed by an estimate of the time it will take to transfer the file in minutes and seconds. This estimate is considered the "worst case" time only. Compression plays a big part in transfer time; this is completely dependent on the contents of the file. Every time you give a **DIR** command, all the relevant statistics will be shown, along with all hidden files. You may issue the **DIR** command with one or both of the following parameters: **DIR/P** pauses after each screenful of data and **DIR/W** displays the directory in wide format.

DIR *.bat	will give a list of files whose extensions are BAT from the current default directory.
DIR LC:\junk	will list the file by the name of JUNK which has no extension on the local PC in the root directory. This differs slightly from the DOS command DIR.
DIR HC:tmp.tst	will list the file by the name of TMP.TST in the current directory on the host PC.

MAKING DIRECTORIES — MKDIR, MD

The **MKDIR** command allows you to create a new directory of subdirectory on either the local or host PC. This command is the same as the DOS command; however, there is no CCDOS command provided for removing a directory.

MKDIR \newdir	will make the directory NEWDIR off of the root on the default drive.
MKDIR newdir	will make the directory NEWDIR off of the current directory on the default drive.
HC:	will change the default device to be the host PC drive C.
MKDIR HC:\hstdir	will make the directory HSTDIR off of the root on drive C of the host PC.
MKDIR hstdir	will make the directory HSTDIR off of the current directory on the default drive.

CHANGING DIRECTORIES — CHDIR, CD

When CCHELP begins working in CCDOS, the working directory is the directory in which CCHELP began running. The prompt appearing after the CCDOS initialization instructions indicates this location on the CCHELP PC. The working directory on the host PC is the current directory at the host PC's DOS prompt when the connection is made.

CHDIR \newdir	will change the default directory to the directory NEWDIR off of the root on the current device.
HC:	will change the default device to be the host PC in the directory current on that system.

CHDIR HC:\hstdir will change the current directory to the directory HSTDIR off of the root on drive C of the host PC.

Viewing a File

The **TYPE** command allows you to view a file. As with the DOS command, the local user can stop the display by depressing the CTRL and 'S' keys, and initiate display completion by depressing the CTRL and 'Q' keys.

TYPE test.jnk will type the file named **TEST.JNK** to the screen.

TYPE HC:test.jnk will type the file **TEST.JNK** from the host PC's drive C.

TYPE RC:\hstdir\test.jnk
will type the file **TEST.JNK** from the host PC's drive C, directory **HSTDIR**.

Deleting, Renaming and Transferring Files

DELETING FILES

Each of the delete commands deletes a file from the device and directory specified. The user will be prompted for verification of the delete, to make sure of the specified file name(s) to be deleted. Use the **DELNV** command instead of the **DEL** command to delete files without prompting for verification. All DOS wildcards are allowed with either delete command.

DEL test.dat will delete the file **TEST.DAT** from the current device and directory.

DEL \newdir\test.dat will delete the file **TEST.DAT** from the current device in directory **NEWDIR.**

DEL HC:test.dat will delete the file **TEST.DAT** from the host PC's current directory, on drive C.

DEL HC:\hstdir\test.dat will delete the file **TEST.DAT** from the host PC's directory **HSTDIR**, on drive C.

DEL HC:\hstdir*.dat will delete all files with an extension of "**DAT**" from the host PC's directory **HSTDIR**, on drive C.

RENAMING FILES

The **REN** commands rename files the same way as their DOS counterparts. The only difference is the you must indicate the device name. If the device name is not indicated in the path name of the file, CCDOS will assume the current device and directory.

REN HA:test.dat HA:test.sav
will rename the file **TEST.DAT** on the host PC's drive A to **TEST.SAV**

REN LB:test.dat LB:test.sav
will rename the file **TEST.DAT** on the local PC's drive B to the **TEST.SAV**

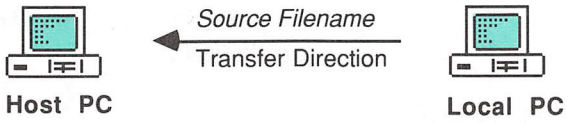
REN LC:\newdir*.dat LC:\newdir*.sav
will rename the files with an extension "**DAT**" on the local PC's drive C to files with an extension of "**SAV**".

TRANSFERRING FILES — COPY

The **COPY** command is used for file transfer between directories and devices on both the local and host PCs. Wildcards are allowed as with the COPY command in DOS.

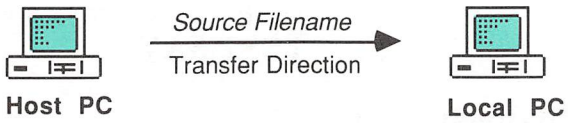
COPY test.dat HC: will copy the file **TEST.DAT** from the current device/directory to the host PC's current directory on drive C.

COPY LA:\newdir\test.dat HB:



will copy the file **TEST.DAT** from **NEWDIR** on the local drive A to the host PC's current directory on drive B.

COPY HA:\hstdir\test. LC:



will copy the file **TEST.**(a file without an extension), from **HSTDIR** on the host PC's drive A to the local PC's current directory.

NOTE: Notice that the file "**TEST**" on the host A drive does not have a MSDOS extension. CCDOS requires that you put a period after the file name when copying files without extensions.

COPY HC:*.sav LC:\newdir

will copy all files with the extension "**SAV**" on the host PC's current device/directory to files of the same name and extension on the local PC's directory, **NEWDIR**, on drive C.

NOTE: The ending slash on the local PC's directory specification is mandatory for CCDOS to find the correct path. Otherwise, CCDOS will assume you are trying to copy to a file called "**newdir**" in the root directory of the local C drive.

COPY HC:*.sav LA:\newdir*.dat

will copy all files with the extension "**SAV**" on the host PC's current device/directory to files of the same name with the extension of "**DAT**" on the local PC's directory **NEWDIR** on drive A.

BATCH FILES — [filename].BAT

The batch file must exist on the local (CCHELP) side and must reside in the directory from which you are running it. Remember, the batch file must contain CCDOS commands.

Batch files in CCDOS are similar to those in DOS in that you may group any of the file management commands listed above together. Commands must contain only acceptable CCDOS commands. A batch file may be called from within a batch file by using the batch file's name without an extension at the CCDOS prompt.

It is suggested that you plan the activity to be performed on the local and host PCs by writing out the commands. Then enter them in a batch file to verify whether the activities can be grouped together to make a batch file which can be performed in a single phone call to the host. Writing out the commands can

also give you a chance to examine the use of the current or default directory and device.

To create the batch file, you may use a non-document text editor, such as EDLIN, which is a part of the DOS operating system. Any text editor or screen editor may also be used.

> **NOTE**: As in a DOS batch file, the last command line in the file must be followed by a carriage return in order for CCDOS to execute the last command. This can be insured by entering at least one extra blank line after the end of the batch file commands while in the editor.

An example of a batch file:

```
COPY HC:memo.doc LB:
COPY HC:letter.dat LB:\YOURLET\
REN HC:letter.dat HC:letter.dlv
COPY LC:notes.dat HC:mynotes.dat
DIR HC:*.dlv
DIR HC:*.dat
```

When the batch file has ended its instructions, it will return to the CCDOS prompt and you may proceed with more commands or simply EXIT.

> **NOTE:** If using a batch file with background file transfers, you will probably want to include the "EXIT" command to exit CCDOS and disconnect the session.

ALERT Command

If you are using a lengthy batch file, you may find it helpful to be notified when it has finished running. By placing an "ALERT" command before your "EXIT" command in the batch file, you will tell Carbon Copy PLUS to sound a tone, alerting you that the batch file has completed.

ALERT will cause CCDOS to sound a tone.

BACKGROUND FILE TRANSFERS

You can perform CCDOS file transfers while the host (CC) side still uses their PC for normal operations. This procedure is called background file transfers. It means that the host user (CC side) will still have full use of the PC while the CCHELP side is performing file transfers.

The following must be done to invoke background file transfers:

- After calling a remote site with **<F1> Call CC User**, you will be prompted for the password.

- The difference invoking background file transfer is entering the host user's password, followed by **<Ctrl> <Enter>**:

  CC <Ctrl> <Enter>

The CCHELP side will automatically proceed to CCDOS, where you can now perform all CCDOS commands.

The CC user will be able to continue working as usual—changing directories, changing drives, running programs and so on.

To exit background file transfer, type:

EXIT <Enter>

You may have an exit statement in a batch file. This will immediately return you to the control screen and disconnect you from the host (CC) user. Once beginning background file transfer, you cannot return to standard remote control operation. Your connection will be terminated upon exiting CCDOS.

There are a few considerations:

- The "Limited CCDOS" and "No CCDOS" password options both disallow access to the host PC. The remote user will receive an error message stating that access has been denied. Background file transfer mode will not allow any access to the host system if either one of these CCDOS options is set. "Full CCDOS" must be selected as the password option.

- While performing multi-file (more than one file copied at a time) background transfers, the host (CC user) cannot run any disk manipulation programs, such as XTREE or CHKDSK. These are programs that scan the entire disk, instead of just one file, thereby not allowing CCDOS to Read and Write to the disk.

- **Background file transfer will work only with Version 5.0 to Version 5.0 of Carbon Copy PLUS.**

Automating Your Background File Transfers

The background file transfers process can be automated via a Call Table entry and a CCDOS batch file. This automated process will do the following:

- Dial the host user's number in the Call Table.
- Enter the host user's password.
- Issue the **<Ctrl><Enter>** to go into background file transfer.
- Perform a batch file which contains CCDOS commands.
- Exit out of background file transfer.
- Disconnect from the host user and reset the line.

All six of these steps can be incorporated into one Call Table entry. The Call Table entry will be as follows:

Name	Telephone Number	Password (:Batch File)
LA	17036665454	CC:GOBAT

The password field should contain the password, a colon (":"), then a batch file name. The colon and the batch file name will be highlighted in the Call Table entry. This is to denote that it will be used for background file transfers.

This batch file name must exist in the (sub)directory from which you are running CCHELP. The batch file should also contain an EXIT statement as the last command if you want to disconnect after the batch file is complete. The batch file is limited to CCDOS commands only.

Special considerations:

- A colon (":") is used between the password and the batch file name.
- No more than eight (8) characters will be allowed after the colon.
- The host user's password will be limited to 15 characters, minus the number of characters in the batch file name. For example, if the batch file name is "GOBAT," then your password will be limited to 10 characters. An example of a batch file can be found on page 4-10.
- The "Limited CCDOS" and "No CCDOS" password options both disallow access to the host PC. The remote user will receive an error message stating that access has been denied. Background file transfer mode will not allow any access to the host system if either one of these CCDOS options is set. "Full CCDOS" must be selected as the password option.
- While performing multi-file (more than one file copied at a time) background transfers, the host (CC user) cannot run any disk manipulation programs, such as XTREE or CHKDSK. These are programs that scan the entire disk, instead of just one file, thereby not allowing CCDOS to Read and Write to the disk.
- **Background file transfer will work only with Version 5.0 to Version 5.0 of Carbon Copy PLUS.**

- The host (CC user) may not be able to successfully load Lotus 123 while a background file transfer is taking place.

- Automated background file transfers can be used in conjunction with Autocall. To do this, at the **C:>** prompt, you would type:

  CCHELP LA

  This would load CCHELP and the Call Table entry "LA," then invoke all the background file transfer instructions and even disconnect if you have an "EXIT" command in your batch file.

Changing DOS Prompt Display — PROMPT

The CCDOS command **PROMPT** changes the appearance of the prompt.This command acts as a switch, turning directory name listing on or off.

PROMPT changes DOS prompt display to indicate current device and directory.

current display of DOS PROMPT	**after issuing PROMPT command**
LC>	Local-C:\newdir>
Local-C:\newdir>	LC>

if an HC: command has been issued:

HC>	Host-C:\hstdir>
Host-C:\hstdir>	HC>

Using CCDOS Over Noisy Telephone Lines

If you are experiencing problems with file transfers over noisy telephone lines, issue the **NOISY** command:

NOISY	reduces packet size to improve file transfer performance over noisy telephone lines.

If the telephone line condition improves and you want to return to normal operation, issue the **CLEAN** command:

CLEAN	restores normal operation after a **NOISY** command has been issued.

Getting Help

Anytime you need a summary of CCDOS commands, type either:

HELP <Enter>

or

? <Enter>

Leaving CCDOS

There are four ways to exit CCDOS. To EXIT from CCDOS, maintain the connection, and return to the joint Carbon Copy PLUS session, type:

EXIT <Enter>

You also can press **<F10>** to perform the same function.

To EXIT from CCDOS, maintain the connection, and return to whatever application was running before you entered CCDOS, type:

EXITA <Enter>

To EXIT from CCDOS, DISCONNECT from the host, and return to the CCHELP menu level, type:

EXITD <Enter>

To EXIT from CCDOS, DISCONNECT from the host, and return to the DOS level, type:

EXITP <Enter>

Use the EXITD or EXITP command as the last command in a DOS batch file that initiates a file transfer. This way, CCHELP automatically disconnects when the transfer is complete, saving unnecessary telephone charges.

The EXITP command is especially useful for performing multiple file transfers with different hosts. For example, you can create a DOS batch file that invokes CCHELP using the name of a Call Table entry. It then performs a background file transfer and exits to DOS when the transfer is complete. Then it invokes CCHELP with the name of another Call Table entry and performs a background file transfer with the new host. See Chapter 2 for a complete description of how to create Call Table entries for background file transfers.

CHAPTER 5

Tutorial — A Working Example

The purpose of this section is to lead you through a short Carbon Copy PLUS session. All the options discussed are explained in detail in the body of this manual. They can be referenced via the Table of Contents. The basic steps provided here can be used as the building blocks for learning Carbon Copy PLUS. It should be noted that it is not necessary that any user become completely knowledgeable about Carbon Copy PLUS in order to use it; one may only need the steps provided here to achieve maximum use of Carbon Copy PLUS.

For this Tutorial session, we will assume the following for BOTH of the Carbon Copy PLUS users (CC and CCHELP):

1. COM1 is the communications port.
2. External Hayes 2400 baud modems will be used.
3. The installation procedure CCSTART (Chapter 2) has been completed.
4. Carbon Copy PLUS resides on each system's hard disk in the subdirectory C:\CCPLUS.
5. Lotus 123 is installed on each system's hard disk in the subdirectory C:\123.
6. "Boston" will be the CC user.
7. "LA" will be the CCHELP user.

The Scenario

Suppose you are in your LA office. Your associate, in Boston, has a PC with a Lotus 123 file named SALES.WK1 that contains important sales data. You need to access this file, add your department's latest sales figures to it, and copy the updated version to your machine. Sound complicated? Carbon Copy PLUS makes it easy.

Setting Up

First, let's decide who's going to be which "side" and who's going to call whom. In Carbon Copy PLUS, the CCHELP side has "control" over the CC side during a communication session. CCHELP can actually use the CC side's computer. The CCHELP user is the only one who can initiate file transfers. Therefore, you would want to make your machine, in LA, the CCHELP side and your associate's machine, in Boston, the CC side. In this scenario, "LA" will call "Boston" with a modem to make the connection. During the procedure, you will be able to exchange dialogue easily with your associate.

Before making a connection, let's make sure Carbon Copy PLUS is installed for the correct system parameters. Both you and your associate should start your machines and change to the C:\CCPLUS subdirectory. At the C> prompt, type:

CD\CCPLUS <Enter>

Next, type:

CCINSTAL <Enter>

At the Carbon Copy PLUS System Parameters Menu, check to make sure the COMM Port Address is set to COM1, the baud rate is 2400, and the modem type is Hayes 2400.

The CC user has two extra parameters that are imperative for CCHELP to gain access to the system. Therefore, "Boston" will select from within CCINSTAL the CC Optional Configuration Parameters by typing a "1." Then make sure that option "A — Normal Modem Answer Mode" is set to ANSWER. Then, return to the System Parameters Menu by pressing the function key **<F10>**.

Next, let's assume that "Boston" would like to add a new password called "CELTICS." By typing a "4" to access the Password Table, he can add "CELTICS" to the table by simply typing it in the "password" column. (This is the password that "LA" will use to gain access to "Boston's" machine.) After each of you is satisfied that your parameters are all set correctly, exit out of the install procedure and save any changes by typing an "X" at the System Parameters Menu.

Getting Started

To begin communication, MAKE SURE THE MODEM IS ON. "Boston" should have Carbon Copy PLUS "up and running" on the machine. Since CC is memory resident, it can be installed by typing:

CD\CCPLUS <Enter>
CC <Enter>

The Carbon Copy PLUS logo will appear on the screen. For purposes of this Tutorial, that's all "Boston" has to do. Because Carbon Copy PLUS remains resident in memory, it is transparent to "Boston" who can continue to work as if CC was not even installed.

(REFRESHER: CC is "Boston"; CCHELP is "LA.")

"LA" can now load CCHELP, MAKING SURE THE MODEM IS ON, by typing:

CD\CCPLUS <Enter>
CCHELP <Enter>

The Carbon Copy PLUS logo will appear briefly on the screen, followed by the Main Menu. Press **<F1>** to place a call. Then type "Boston's" modem telephone number. Spaces or dashes are not necessary. However, you may need a "9," (nine comma) before the number to call out from a switchboard. (The comma represents a delay before continuing with the rest of the number.) For example:

9,16175551212 <Enter>

When you press **<Enter>**, the modem will dial the number and attempt to connect. Once "Boston's" modem has answered, you will be prompted to enter a password. At the password screen, type in the password, in either upper or lower case letters:

CELTICS

You will now see whatever is on the CC user's screen.

"Boston" or "LA" can press the **<Alt><Right-Shift>** keys simultaneously and the Carbon Copy PLUS main menu will appear on both screens. "LA" will see the CCHELP options available while "Boston" will see only the CC options available. At this point, you may both type dialogue to each other, which will appear in the "chat" windows at the top of your screens. You can even type at the same time, because you both have separate windows!

"LA," now you're in control!

Now that you are connected, we will begin Lotus 123. First, press the function key **<F10>** to take you to the application level. Now you can change to the \123 directory by typing:

CD\123 <Enter>

Next, load Lotus 123. Type:

123 <Enter>

You are actually loading Lotus 123 on "Boston's" PC, by typing on your machine!

Now, using the appropriate Lotus commands, you can make the necessary additions and changes to the file SALES.WK1. After editing, save the file.

The next step is to copy the file to your system. You do not even have to exit Lotus 123 to do this. Simply press **<Alt>** and **<Right Shift>** to return to the Carbon Copy PLUS main menu. Next, access the file transfer menu by pressing the

function key **<F5>**. You are now in CCDOS — Carbon Copy PLUS's powerful file transfer program. A brief explanation of how CCDOS commands work is on the screen. In CCDOS, the CCHELP side is known as the "local" PC (because that is you) and the CC side is the "host" PC. Therefore, to copy SALES.WK1 from "Boston's" PC, type at the local C:\CCPLUS> prompt:

COPY HC:\123\SALES.WK1 LC:\123*.* <Enter>

This tells CCDOS to copy the file SALES.WK1, which is in the subdirectory C: \123 on the CC side TO the subdirectory C: \123 on the CCHELP side.

As the transfer takes place, both CC and CCHELP will see a progress barometer indicating how much of the file has been transferred. When the transfer is 100% complete, you will be returned to the CCDOS prompt. To return to the Main Menu, type:

EXIT <Enter>

That's all there is to it.

- You have connected to the "Boston" PC.
- You have used Lotus 123 on the "Boston" PC.
- You have transferred the file from the "Boston" PC to your PC.

You may now end the communication session by pressing **<F1> <Enter>**. This will disconnect the two modems, leaving you at the CCHELP menu and "Boston" will return to Lotus 123. Press **<F10>** to exit CCHELP or press **<F1> — Call CC User** to try it all over again!

GLOSSARY

Background File Transfer — The ability to perform CCDOS file transfers from the CCHELP side while the CC side retains full use of its PC.

Baud Rate — The number of times the state of a line changes per second.

Bits Per Second (BPS) — The rate at which individual bits of information is transmitted through a communications device.

Call-In Directory — The directory on the host system to which the remote user has access when the remote user's password has Limited CCDOS capabilities. The host PC must be in the Call-In directory in order for the remote user's commands to be completed successfully.

Call Table — A table that lists the names and phone numbers of remote users. Can be used to automatically dial a phone number.

Configuration File — A Carbon Copy PLUS file (CC30.CFG and MM30.CFG) that contains communications settings, passwords, and Call Table entries.

Configuration Screen — The Carbon Copy PLUS screen that appears when running CCINSTAL. Used to define communications settings, passwords and Call Table entries.

Control Screen — The Carbon Copy PLUS screen where the remote user enters commands to the host PC.

Data Mode — The mode that is used when both PCs are "talking" to each other over a modem connection.

Direct Connection — A connection between two PCs where no modems are used. Same as being "wired" or "hard-wired."

Host PC — The user who is being controlled. The "host" site can share its PC with a "remote" site. Host PC is a term that refers to the system running CC.

Local PC — The user who is controlling the host PC during file transfer. Because file transfer can only be run from the CCHELP side, during file transfer it is referred to as the "local" PC. The local PC can transfer to or from the host PC. Local and remote PC are both terms that refer to the system running CCHELP.

Modem — A device including a MOdulator that transforms digital data used by a computer into signals that can be transmitted over a telephone line and a DEModulator that does the reverse, transforming telephone signals into digital data.

Two types of modems are currently available — an internal version and an external version. Internal modems are printed circuit boards which reside inside the PC while external modems are stand-alone units that sit outside the PC.

Reboot -- To restart your PC, clearing memory and booting DOS.

Remote Control Program — A software program that allows you to control the actions of a host site from a remote location. This includes keyboard and video.

Remote PC — The user who is controlling the host PC during all remote control sessions. Remote and local PC are both terms that refer to the system running CCHELP.

RS232 Cable — A standard interface cable used with data communications equipment.

Voice Mode — The mode used when the remote and host users want to talk over the telephone.

APPENDIX A

Modem and Direct Cabling Information

The RS-232 Interface

Most modem cabling requirements for the IBM PC involve using what is known as an RS-232 interface. RS-232 is an EIA (Electronics Industry Association) standard for serial data communications which covers everything from the number of pins in the cable to voltage requirements.

RS-232 devices are divided into two main groups:

- DTE (Data Terminal Equipment) devices
- DCE (Data Communication Equipment) devices

DTE devices typically are computer terminals and PCs while DCE devices are typically telecommunications equipment such as modems.

The RS-232 interface is defined by a series of circuits which are continuous wires from one device to the other. For a standard RS-232 interface, there are 25 circuits, yet not all are required to be used for a given interface. The following common circuits are used by Carbon Copy PLUS:

XMIT **Transmit Data** (DB25-Pin 2/DB9-Pin 3)
This circuit is used to send serial data from a DTE device or a DCE device.

RCV **Receive Data** (DB25-Pin 3/DB9-Pin 2)
This circuit is used to send serial data from a DTE device or a DCE device.

RTS **Request To Send** (DB25-Pin 4/DB9-Pin 7)
This circuit is used to signal that a DTE device wants to send data to the DCE device or vice versa.

CTS **Clear To Send** (DB25-Pin 5/DB9-Pin 8)
This circuit signals that the DCE device is ready to accept data from the DTE device or vice versa.

DSR **Data Set Ready** (DB25-Pin 6/DB9-Pin 6)
This circuit signals the DTE device that the DCE device is up and working.

GND **Signal Ground** (DB25-Pin 7/DB9-Pin 5)
This circuit is the ground signal

CXD **Data Carrier Detect** (DB25-Pin 8/DB9-Pin 1)
This circuit signals the DTE device that the DCE device has an incoming carrier.

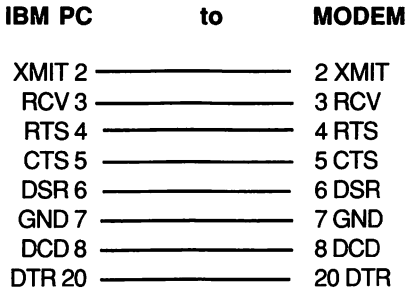
DTR **Data Terminal Ready** (DB25-Pin20/D9-Pin4)
This circuit signals the DCE device that the DTE device is up and working.

RI **Ring Indicator** (DB25-Pin22/DB9-Pin9)
This circuit indicates when the modem has an incoming ring.

The following describes specific cabling requirements for Carbon Copy PLUS.

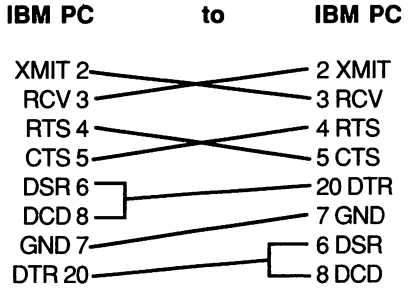
IBM PC — HAYES SMARTMODEM 1200

The following diagram shows the cable requirements to connect an IBM PC to a Hayes Smartmodem 1200:



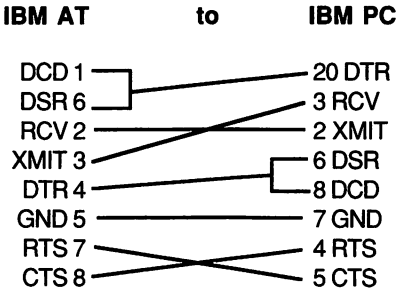
IBM PC — IBM PC

The following diagram shows the cable requirements to direct connect an IBM PC to another IBM PC.



IBM AT — IBM PC

The following diagram shows the cable requirements to direct connect an IBM AT to an IBM PC.

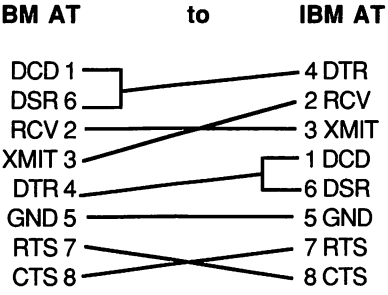


AT DB9 SERIAL PORT PINOUTS

Cable Pin #	Signal
1	Carrier Detect DCD
2	Receive RCV
3	Transmit Data XMIT
4	Data Terminal Ready DTR
5	Signal Ground GND
6	Data Set Ready DSR
7	Request To Send RTS
8	Clear To Send CTS
9	Ring Indicator RI

IBM AT — IBM AT

The following diagram shows the cable requirements to direct connect an IBM AT to another IBM AT.



IBM AT — HAYES SMARTMODEM 1200

The following diagram shows the cable requirements to connect an IBM AT to a Hayes Smartmodem 1200.

IBM AT		MODEM
1	Carrier Detect DCD	8
2	Receive RCV	3
3	Transmit Data XMIT	2
4	Data Terminal Ready DTR	20
5	Signal Ground GND	7
6	Data Set Ready DSR	6
7	Request To Send RTS	4
8	Clear To Send CTS	5
9	Ring Indicator RI	22

APPENDIX B

Miscellaneous Notes, Advanced Features and Networks

Applications That Take Over The Keyboard

Several popular programs take over control of the keyboard from the PC BIOS. Examples include Microsoft's QuickBASIC, PRINT-Q, IRMA 3270 Emulation, etc. Until now, this made it impossible to operate these programs from remote control programs, such as Carbon Copy PLUS. We have devised a technique to operate these programs which has been integrated into Carbon Copy PLUS; it is called the Advanced Keyboard.

First, the Advanced Keyboard is not for everyone and will not work reliably with all DOS application programs. Therefore the Advanced Keyboard has been made an option which must be activated before it can be used. This activation is on the CC side on a password by password basis. This is set-up during the installation process as follows:

- Type "~ADV" to enable access to the Advanced Keyboard settings. This may be activated by typing "~ADV" in the main CCINSTAL screen. It may also be activated by typing "~ADV" in the Password Table, while in the password field. For foreign versions of Carbon Copy, the "!ADV" may be used also. Both of these actions will make the Advanced Keyboard selection appear for all of the passwords.

- For each password select whether the user may utilize the advanced Keyboard, and secondly whether the Advanced Keyboard should be enabled when the user logs on. The CCHELP user can always toggle the Advanced Keyboard from Enabled to Disabled during the course of a session by **<F8>**/4 in the Data Link Maintenance Function Menu.

Remember, the Advanced Keyboard will not work in all cases. The CCHELP user should be alert to any problems which may arise when using the Advanced Keyboard and toggle it off.

Remote Use of Emulation Boards

IRMA 3270 EMULATION

In order to access the IRMA card remotely, the IRMA software must be patched to allow INT 16 (the keyboard handler) to pass through. The steps necessary to create this patch are as follows:

- In the IRMA Terminal Emulator Customization Menu program (E78GEN Utility), select (14) PC Look-Alike Setups.
- Another menu will then be displayed, labeled PC Look-Alike Setups. Select (26) + Allow INT 16 passthrough.

Once these steps have been completed, the IRMA board can be accessed remotely, provided that CC is loaded first and Advanced Keyboard is enabled.

PCOX TWINAX 5250 EMULATION

Twinax **MUST** be loaded before CC.

Auto-Call

This feature will automatically load CCHELP and place a call from the MS-DOS prompt. If a password is in the Call Table Entry it will automatically load it as well. If the Entry is setup as an Emulation Entry, it will automatically setup as such and go directly into the Terminal Emulator. The following example of Auto-Call is based on a Call Table Entry named TEST.

CCHELP TEST <Enter>

will automatically load CCHELP and dial the number associated with TEST in the Call Table.

CCHELP Memory Resident

CCHELP may be loaded as a memory resident program, and can be activated by a "Hot Key" sequence in the same manner as CC. Resident CCHELP requires about 172K bytes of memory. To load CCHELP as a memory resident program, type the following:

CCHELP/R <Enter>

Use the specified "Startup Keystrokes" to go into the Carbon Copy PLUS's menu.

If you wish to use the Auto-Call feature in conjunction with /R, type:

CCHELP TEST /R <Enter>

To remove CCHELP from memory, you must reboot.

Communications Overview

Carbon Copy PLUS is a communications-oriented package and requires information regarding the serial port to be used, the modem and the speed at which the modem is to operate. All three aspects of communications will be addressed here. After the parameters have been selected you will be able to perform some tests to check out these aspects.

This is the most difficult section of Carbon Copy PLUS. Data communications in general give both novice and expert users the most problems experienced in the normal data processing functions performed on today's PCs. While data communications is a relatively simple concept to grasp, basically transferring information from one PC to another, it is complicated by the array of hardware, software and cabling that must be coupled together in order to work. This section is oriented for the majority of users.

At this point it is assumed that you have already installed a communications device (most likely COM1 or COM2) and connected it to a modem or installed an internal modem (a

hardware board that combines the functions of the communications device and that of a modem). If not, please go back to the installation section. It is also suggested that you run any diagnostic or test procedures recommended by the modem manufacturer before continuing.

As far as cabling or modem option selection is concerned, Carbon Copy PLUS utilizes communication "Hand Shake" control leads. The DCD (Carrier Detect) lead allows Carbon Copy PLUS to determine when a connection to another system has been made or dropped. The DTR (Data Terminal Ready) lead is used by Carbon Copy PLUS to get its attention when command strings are sent to the modem. The RTS (Request To Send) and CTS (Clear To Send) leads are used to control the data flow between two systems, when one system may be overloading another. Data Flow control is essential in the new high speed modems and is strongly suggested in the slower speed modems.

Carbon Copy PLUS operates with most major manufacturers' modems. The CCINSTAL "Modem Type" option will display a list of the more popular modems. Use the cursor keys to move the reverse video cursor to the appropriate modem and press **<Enter>** to select the modem. If your modem name does not appear in the list, it most likely is a clone of one of the modems in the list. It is probably compatible with the "Hayes" family of modems. Therefore, select "Standard AT Modem" as your installed modem setting. If it provides MNP capabilities, then you would select the "MNP Compatible" setting.

The final communications parameter that is required is the rate of speed at which the modem is to be operating. In general you will want to operate the modem at the fastest possible speed. Today's modems automatically "Auto-baud" or adjust their communications speed (baud rate) when communicating with slower speed modems. Communications speed is generally represented in Baud, or the number of bits that can be transmitted in 1 second. For example 1200 Baud, indicates the modem can transfer up to 1200 bits per second, representing about 120 characters per second. Higher rates are sometimes indicated in kilo-baud; for example 19.2K Baud is the same as 19,200 Baud.

We have set up baud rates acceptable for the modem you have selected, wherever possible we will "Auto-baud" down to incoming or outgoing calls with a different baud rate.

Enhanced Keyboards

When using some AT or PS/2 style enhanced keyboards, it is necessary to select **AT Enhanced** or **PS/2 Style** during the System Installation Process (CCINSTAL). This is due to the different scan codes that are used for these different keyboards.

Modem Notes

- Attempt to use modems at Factory Default Settings.
- Microcom QX series modems must be used in AT mode only.
- Switch settings for the:

Microcom AX and QX Series	**AT Mode**
Front: switches 2, 3, 8	DOWN All other switches UP
Rear: switches 3, 6, 7	DOWN All other switches UP
Microcom AX Series	**SX Mode**
Front: switches 4, 8	DOWN All other switches UP
Rear: all switches	UP
Hayes Smartmodem 1200	**8 and 10 switch modems**
Switches: 3, 8 1, 2, 4, 5, 6, 7, 9, 10	DOWN UP

Hayes 1200B - Internal 6 switch modem

Switch:	1 (COM1)	DOWN
	1 (COM2)	UP
	3,	DOWN
	2, 4, 5, 6	UP

NOTE: Be sure to check the modem's manual for the switch settings appropriate for your particular modem.

USRobotics Courier 2400

Switches:	1, 2, 4, 6, 7, 10	OFF
	3, 5, 8, 9	ON

- Make sure that your modem is set up to follow these two leads (See Chapter 2, "Installing Carbon Copy PLUS," for further details and Appendix A for cabling and corresponding pin definitions):

  1. Support of the RS-232 DTR Lead, allowing pin 20 (DB25, Pin 4 on DB9) to toggle True or False. (DO NOT force the DTR lead TRUE.)

  2. Support of the RS-232 DCD Lead, allowing pin 8 (DB25, Pin 1 on a DB9) to track the state of data carrier (CD) from the remote station. (DO NOT force the CD lead TRUE.)

- Racal Vadic modems must have DTR set High. See the Modem Manual for the correct DIP Switch or software setting.

- Anderson Jacobsen and Ventel Leased Line modems must call Tech Support to obtain a special patch to accommodate the modems' differences in timing.

- If you are experiencing problems with completing a connection, be sure to check the following:

  1. Modem Factory Default switch settings.

  2. The full cables are connected properly.

  3. Verify the COMM port's address and IRQ.

  4. Make sure your modem is returning result codes.

  5. Make sure your modem has echo characters on.

  6. Check the modem and the COMM port. Make sure it is set for full duplex, 8 bits, no parity, 1 stop bit.

  7. Make sure the Flow Control is:

     a) Hardware flow control — both directions CTS and RTS leads.

     b) Xon / Xoff disabled.

  8. Make sure DTR and DSR follow CD.

  9. Make sure of the baud rate and the protocol:

     a) High speed modems (above 2400 baud) — set for no-baud rate-adjust.

     b) No buffering for speed connections below and including 2400 baud.

Running CCHELP Over CC

If CC is already loaded into memory, you may also run CCHELP. To do this, you must type the following command line:

CCHELP/O <Enter>

If you wish to use the Auto-Call feature in conjunction with /0, type:

CCHELP TEST/O <Enter>

NOTE: When running CCHELP over CC, you cannot use the "**Continuous Audit**" log file option. Using it would cause CC and CCHELP to attempt to write to the same log file. All other logging options are allowed.

If Your Modem Does Not Appear in CCINSTAL

The Carbon Copy PLUS Master diskette comes with a file called MODEM.DSS. This file contains the list of available modems which appears when you run CCINSTAL. To save screen space, this list contains only the most common modems. If your modem does not appear when you run CCINSTAL, return to the DOS level and delete the file MODEM.DSS from your working copy of the Master Diskette or from the directory on your hard disk that contains your Carbon Copy PLUS program files. Now copy the file MODEM.DSC from the Carbon Copy PLUS Utility diskette to your working diskette or directory. MODEM.DSC contains a complete list of available modems, which will be displayed the next time you run CCINSTAL.

CCDOS Screen Problems on a Compaq PC

If you are running CCHELP on a Compaq PC, the screen may go blank or all the data may appear on one line when you use CCDOS. If this happens, exit from CCHELP and invoke the program with the /C parameter as follows:

CCHELP /C

This should make the screen display normally when CCDOS is entered.

Hercules Graphics Mode on the Host (CC)

Disabling the screen has no effect when the host PC (CC) is running an application in Hercules Graphics mode. Disabling the screen has the intended effect when the host is running an application in Hercules Text mode.

APPENDIX C

Printing With Carbon Copy PLUS

Introduction

Carbon Copy PLUS's printer control allows you to:

- Have direct, on-line printing or spooling of data.
- Print at both remote and host user's PCs independently or at the same time.
- Record printer activity in a separate log file for viewing at a later time.
- Print files on the host PC and "print" them to a spool file on your PC. The spool file can then be printed in the background while you continue to work.

On-Line Printer and Spooling Control (Remote Users Only)

When CCHELP establishes a connection with CC, the printer output is directed to CC by default. The user may choose to have the printer output directed to either system, spooled to the CCHELP side, and/or printed on-line. These options, set in CCINSTAL, are described below. Each option may be changed once CCHELP is connected with CC. This is done by using the **<F6>** option in CCHELP. All of the options associated with CCHELP will be discussed in this Appendix. CC has few **<F6>** choices, which are used merely to reroute the printing from CC, CCHELP or both. Spooling is neither necessary nor available on the CC side.

On-line printing or spooling is controlled by selecting option "**S — Initial Spool File**" from the CCHELP Optional Configuration Parameters screen and through option "**<F6> Printer/Log/DOS Control**" from the CCHELP control screen.

On-line printing refers to the printing of print data that is being generated by the host PC. This data is actually written to a temporary spool file on the remote user's system and then is printed on the remote user's (CCHELP) printer as fast as the printer can accept the data. This data is deleted from this temporary file as soon as it is printed and, therefore, cannot be recovered if the printer jams or other problems occur.

Data may also be spooled to data files on the remote user's (CCHELP) side for printing at a later date by selecting "**Extend CCPRT.SPL**" from the "**S**" option within CCINSTAL. Both data file spooling and on-line printing may be done together by selecting "**Print/Spool to CCPTR.SPL.**" The CCPTR.SPL file to be created will be created in the directory specified as your working directory.

The printer control may be changed by making different selections from the "**S**" or "**P**" options under CCHELP Optional Configuration Parameters in CCINSTAL or by using the **<F6>** option on the CC or CCHELP Control Screens. Chapter 4 contains complete detailed information on all of these options.

Printer Control Options Summary

CCINSTAL "S — Initial Spool File" Option

Setting	Description
None	Printing on-line or spooling NOT done. (Default)
Extend CCRT.SPL	Print file is spooled only.
Print CC Ptr Output	On-line printing only.
Print/Spool to CCPTR.SPL	On-line and spooling at the same time.

CCINSTAL "P — Printer Assignment" Option

Setting	Description
CC	Printing is done on the CC side. (Default)
CCHELP	Printing is redirected to the CCHELP side.

CCHELP "<F6> — Printer/Log/DOS Control" Option

Setting	Description
1 — Enter Log File Data	ID and Reference entry text fields provided for your convenience.
2 — Printer to CC	Printer output STAYS on the CC machine to be printed only at the CC printer. No spooling is available.
3 — Printer to CCHELP	Printer output is directed to CCHELP and the choices are available for spooling or on-line printer output.
4 — Printer to Both	Printer output is directed to both CC and CCHELP. CC will print to its printer ONLY and CCHELP may spool and/or perform direct printing.
5 — Open a Print Spool File	A spool file will be opened on the CCHELP system and the printer output will be redirected to CCHELP. (See Chapter 4 for more details.)

6 — Close a Spool File	This will close any open spool file and ask if you would like the spool file printed first.
7 — Print/Despool Function	Within this option you may select on-line printing or despool a spool file. This allows you to continue working while the spool file is printing. Printer output will be redirected to CCHELP for you.
8 — Terminate Print Request	This will terminate a request for spooling, despooling or online printing on the CCHELP side.

APPENDIX D

Carbon Copy PLUS Command Summary

CCDOS Commands

COMMAND	FUNCTION
ALERT	Provides a method to sound an "Alert" tone while in CCDOS.
CHDIR	Changes the current working directory to the specified directory.
COPY	Sends and requests files from one PC to another.
DEL	Deletes the specified file.
DIR	Lists the current contents of the specified directory.
EXIT	Exits CCDOS and returns you to the Carbon Copy PLUS joint session.
MKDIR	Creates a new directory or subdirectory.
PROMPT	Specifies how you want the directory prompt displayed.
REN	Renames the specified file.
TYPE	Types or lists the specified file.

Additional Carbon Copy PLUS Executable Programs

COMMAND	FUNCTION
CC	Invokes Carbon Copy PLUS on the host PC.
CCHELP	Invokes Carbon Copy PLUS on the remote PC.
CCINSTAL	Runs the software installation procedure for Carbon Copy PLUS.
CCLOG	Displays information contained in your Carbon Copy PLUS log files.
CCREMOVE	Remove "CC" (the host side) from memory.
CCSTART	First time (one time only) installation procedure. Creates the operating modules necessary for both the host and remote users.
CCSECURE	Adds a special security feature to both host and remote sides.

APPENDIX E

Troubleshooting Carbon Copy PLUS

The troubleshooting Appendix provides a list of Carbon Copy PLUS error messages and solutions for commonly encountered problems. Instructions on how to call Meridian Technology, Inc. for technical assistance are also included here.

Error Messages And Solutions

There are four classifications of error messages, each relating to the type of communication or CCDOS activity being performed. The classifications are:

COMMUNICATION ERRORS
CCDOS ERRORS
FATAL/NON-RECOVERABLE ERRORS
GENERAL ERRORS

COMMUNICATION ERRORS

Call Could Not Be Completed

Problem: If using a Call Table to place the call, the phone number or password entered in the Call Table may be incorrect. If you are entering the phone number or password manually, then you may have mistyped the entry.

The phone at the receiving side of the call may be busy.

Solution: If this message appears, then verify the phone number and password entered in the Call Table. If the phone number is correct, then contact the host user to verify the existence of the calling password.

If the receiving side is busy, wait and retry the call.

COMM Device Did Not Respond to Interrupt Test Invalid COMM Device Specified — Recheck System Configuration

Problem: You have no COMM device in your system or the COMM port you specified while running "CCINSTAL" does not match the locations of your hardware.

Solution: 1. Install a COMM device in your system. The jumper addresses should be set as follows:

COMM PORT	INTERRUPT REQUEST #
COM1	IRQ4
COM2	IRQ3
COM3	IRQ4
COM4	IRQ3

2. Rerun "CCINSTAL" and select the correct COMM port for the location of the hardware you are using.

COMM Device IRQ Is Not Configured Correctly

Problem: The IRQ on your hardware is jumpered incorrectly.

Solution: Set your jumper addresses as follows:

COMM PORT	INTERRUPT REQUEST #	ADDRESS
COM1	IRQ4	3F8
COM2	IRQ3	2F8
COM3	IRQ4	3E8
COM4	IRQ3	2E8

or program the "other" option to correspond to your hardware IRQ and address.

Connection Could Not Be Completed

Problem: The phone at the receiving side has answered but the protocol exchange between CC and CCHELP could not be completed. The modem may be on but Carbon Copy PLUS is not running on the PC.

Data Communications Fault. Command Cancelled.

Problem: Either the modem has experienced a failure and is no longer set up for the communication, or the cable extending from the PC to the modem or another PC has caused a disruption in communication, so that Carbon Copy PLUS is not responding to the communication attempts.

NOTE: Communication attempts are performed ten times by Carbon Copy PLUS before this message appears.

Solution: Exit back to the application screen. Ensure the cables connecting the PC to the modem, or other PC, are firmly attached. If using modems, check the phone line to make sure that it is connected. If you are running Carbon Copy PLUS and a modem, then reset the modem by pressing the hot key sequence and select <F8> Data Link Maintenance, option 1, to reset the Data Link. Then, re-attempt the communication connection.

Host User Pressed Escape. Returning to Menu.

Problem: The host user pressed an escape during CCDOS operation. CCDOS will exit and the control screen will appear.

Solution: Contact the host user regarding the current operation he aborted or attempted to abort.

NOTE: Operations specific to the local PC will complete before the host operator escape is detected and displayed.

Invalid Working Directory Specified to CCINSTAL, Execution Cancelled

Problem: The working directory you specified while running "CCINSTAL" is not a valid directory.

Solution: Rerun "CCINSTAL" and enter a valid default directory name.

Invalid Packet Request Code

Problem: During a file transfer or other file manipulation command, a request was encountered by the remote PC which could not be performed; or a data packet being sent during a file transfer has been corrupted and the local or host PC cannot interpret the packet.

Solution: Exit CCDOS and re-enter CCDOS with the <F5> option from the control screen.

Modem Definition File "MM30.CFG" Not Found, Execution Cancelled.

Problem: The Carbon Copy PLUS modem configuration file "MM30.CFG" has not been created, or is not on the default drive in the working directory.

Solution: Follow the instructions presented in Chapter 2 for running "CCINSTAL" and create "MM30.CFG," or default to the drive and directory where the "MM30.CFG" file is located.

No RS-232 Cards on System

Problem: The hardware on your PC is not configured with any serial communication devices.

Solution: Carbon Copy PLUS needs a serial communications port to run. If a device is on your PC, change your system's configuration switch settings. See your PC installation manual for more information.

The COM1 Logical Device is Physical Device COM2

Problem: An incorrect COM device was specified when running "CCINSTAL."

Solution: Rerun "CCINSTAL" and change the COMM device to the correct COMM port. The following shows the correct interrupt and address settings for Carbon Copy PLUS:

COMM PORT	INTERRUPT REQUEST #	ADDRESS
COM1	IRQ4	3F8
COM2	IRQ3	2F8
COM3	IRQ4	3E8
COM4	IRQ3	2E8

OTHER can be programmed for your correct IRQ and address.

Warning. . . CTS (Clear to Send) is Not Presently Asserted

Problem: The modem is not responding correctly.

Solution: Check to see that the modem is turned on. If it is not, turn it on and reset the communications line by selecting <F8> Data Link Maintenance, option 1, "Reset The Data Link." If your modem is turned on, a hardware problem may be causing the error, such as two COMM boards configured to the same I/O address. If so, correct the problem before proceeding.

CCDOS ERRORS

Access Denied

Problem: You have attempted to access an area on the host PC into which you are not allowed. This restriction is placed on you by the password you are using. The host user's Password Table has your password option set up for limited CCDOS.

Solution: You should contact the host user and verify the directory location, because the host PC may not have been on the correct drive and/or directory when your connection was active. If you are to have Limited CCDOS capabilities, then the PC must be in the intended CALL-IN directory before your commands can be completed successfully. If you need to work in more than one directory on the host PC, then the host user needs to set your password option to Full CCDOS.

Copy Stopped

Problem: The copy has been stopped by either the remote operator pressing escape or the local operator pressing <Ctrl><Break>.

Solution: If the copy was aborted by the remote operator, verify the reason for the abort.

Delete File Error

Problem: The specified file cannot be deleted because of its attribute, or your password only allows Limited CCDOS access to the host PC.

Solution: Verify the file's attribute as described in your PC-DOS manual. You should contact the host user regarding your password's CCDOS option

or the CALL-IN directory where the host PC should be after running Carbon Copy PLUS.

Device Full

Problem: The destination disk drive on which the command is being performed has no more space to store the data being sent. This may also occur when attempting to create a directory.

Solution: Verify the space remaining on the destination disk drive before re-attempting the command. Space on the device must be cleaned off to allow new data storage, else a subsequent device must be chosen. If you are attempting to create a directory and this message was issued, then the device's directories must be examined and one deleted from the drive to create a directory.

Directory Stopped

Problem: The host user has probably pressed an escape which stopped the current directory listing; or the host PC has encountered a corrupted area on the disk which has stopped the directory listing.

Solution: Contact the host user about the intervention in communications.

DOS ERROR: nnnn

Problem: A PC-DOS error has been received by Carbon Copy PLUS.

Solution: The "nnnn" indicates a DOS error code. The DOS error codes are:

1 — Invalid
2 — File Not Found
3 — Path Not Found
4 — Too Many Files Opened

5 — Access Denied
6 — Invalid Handle
7 — Memory Allocation Block Bad
8 — Insufficient Memory
9 — Invalid Memory Block
10 — Bad Environment
11 — Bad Format
12 — Invalid Access
13 — Invalid Data
15 — Invalid/Drive Not Ready
16 — Path is Current Directory
17 — Not Same Device

Refer to your PC-DOS manual for specific information on each of these codes.

File Create Error

Problem: The file could not be created because the file handles allocated in the PC's CONFIG.SYS were exhausted, or else the host PC has restricted the CCDOS access to the directory current at the time of the call.

Solution: Verify the number of allowable files by viewing the CONFIG.SYS with the DOS "TYPE" command. The 'FILES =' must be set to 11 or higher. If the error resulted on the host PC, have the host user check the CONFIG.SYS and see if your password is set for the LIMITED CCDOS option. Ask for the correct directory to be set when Carbon Copy PLUS has run and awaits your call, or for a password with full CCDOS capabilities.

File Lookup Error
or
File not Found

Problem: The specified file does not exist in the directory.

Solution: Verify the directory where the file exists and either include it in the file name specification or perform a "change directory" to ensure that the file's directory is changed to the active directory before this command is performed.

File Open Error

Problem: The file cannot be opened because either the file handles allocated in the PC's CONFIG.SYS file are not enough or the file is locked by DOS by a previous command.

Solution: Verify the number of allowable files by viewing the CONFIG.SYS with the DOS "TYPE" command. The 'FILES =' must be set to 11 or higher.

File Open Error cccccc

Problem: CCDOS could not open the specified file. "cccccc" indicates the error status of the "open."

Solution: You should consult your PC-DOS manual for more information on this error status and take the appropriate corrective action.

Insufficient Memory

Problem: The PC on which you are running Carbon Copy PLUS does not have enough memory to run the executable. CC requires between 48K and 58K of memory depending on your system configuration.

Solution: Verify your system's hardware configuration. It must have the prescribed memory. If the memory is used by applications which are loaded in memory, it is suggested that you reboot to remove them in order to have enough memory.

Invalid Drive Specification
or
Invalid Drive / Drive Not Ready

Problem: You have specified a device name which is not supported by CCDOS or a drive not actually on the designated PC.

Solution: You should verify the existence of the drive on the designated PC and ensure that it will be in READY before re-initiating the command or task. In background file transfer you are limited to the drive letters A through I.

Invalid Number of Parameters

Problem: The command line has an error in the way it has been specified. Spacing or extra elements are incorrect.

Solution: Check the format of the command line against CCDOS and the examples of CCDOS commands.

Operator Abort

Problem: The local PC operator has chosen to abort the current operation. If CCDOS is currently running a batch file, only the current operation in the file will be aborted, not the entire file.

Solution: To complete the operation, restart the operation. This message will be issued only when an operator performs an abort.

Path is Not in Current Directory

Problem: This is a non-recoverable error. Carbon Copy PLUS cannot find the Path for the DOS command interpreter on exit from the program.

Solution: Your system will have to be rebooted. Verify that the DOS command interpreter is on the device from which you ran Carbon Copy PLUS. Your "PATH" command may include the command interpreter.

Path Not Accessible

Problem: You are not able to move to or retrieve any data from the specified path. You may be calling the host PC using a password with limited CCDOS, and the CALL-IN directory is the only path in which you may perform commands.

Solution: Check that the path exists and is not locked by some security application. Contact the host user regarding the CALL-IN directory location and your password with the Limited CCDOS option.

Path Not Found

Problem: You have specified a path which does not exist while attempting to change directory or make directory; or you are restricted from performing this command on the host PC by a password with Limited CCDOS.

Solution: Verify the device name and path specified. If the host PC is responsible for restricting your action, then contact the host PC regarding the CALL-IN directory and your limited CCDOS password option.

Read Error
or
Read/Write Error
or
Write Error

Problem: There was a problem in reading or writing a block of the file's data. An abort or escape entered by an operator will also display an error

message. This message will also appear if you have called the host PC with a password that allows only Limited CCDOS commands.

Solution: If an abort or escape was entered, consult the operator responsible and examine the additional error message solution. If the error was simply in reading or writing, then the designated disks should be examined for corruption. Consult your PC-DOS manual for the "CHKDSK" utility. If an "Access Denied" message was also given, then you should contact the host user regarding the CALL-IN directory or a password which has full CCDOS.

Rename Error

Problem: This error occurs when the Carbon Copy PLUS password on the host PC has the Limited CCDOS option set and an attempt is made to rename a file not in the current CALL-IN directory.

Solution: Contact the host user about the rename attempt. If access to directories other than the CALL-IN directory are necessary, then you should request a password with full CCDOS capabilities. Otherwise, the host user must ensure that the CALL-IN directory is in place for your connection.

Unable to Access Specified Directory

Problem: Either the directory does not exist or the password used for entry has limited CCDOS access, defining the entry directory as the only allowed access.

Solution: Check for directory and drive existence and verify password options with the operator responsible for the host PC's Password Table.

Unable to Create Directory

Problem: The directory cannot be created because all of the possible directory entries have been used, a directory of the same name already exists, or you are calling the host PC and the password you used has been set up for Limited CCDOS commands.

Solution: Check the space available on the destination disk, verify that the directory does not already exist, or contact the host user for a password which will allow you full CCDOS.

FATAL/NON-RECOVERABLE ERRORS

Invalid Error Code #### Please Report to Customer Service

Problem: An error has been detected for which the Carbon Copy PLUS developers have not built specific error handling.

Solution: Call the Customer Service department of Meridian Technology, Inc. and describe the conditions under which the error occurred. The "####" number describes an error type generated by the DOS operating system. Consult your PC-DOS manual's error section and take the prescribed appropriate action before re-issuing the task in Carbon Copy PLUS.

!! Unknown execution error : #### !!

Problem: This message will be displayed if a DOS error occurs which has not been predicted by the Carbon Copy PLUS developers.

Solution: The number "####" which will be displayed should be located in your PC-DOS manual under DOS Error Messages. You should take the prescribed corrective action, then re-issue the task within Carbon Copy PLUS.

GENERAL ERRORS

'CC' is Already Running

Problem: Carbon Copy PLUS is already resident. Only one copy of Carbon Copy PLUS can be active at any time.

Solution: No action is required. Carbon Copy PLUS is already running.

Configuration File "CC30.CFG" Not Found, Execution Cancelled

Problem: The Carbon Copy PLUS file "CC30.CFG" has not been created, or is not on the default drive.

Solution: Follow the instructions presented in Chapter 2 for running "CCINSTAL" and create "CC30.CFG," or default to the drive where the "CC30.CFG" file is located.

When All Else Fails

You have tried everything but can't get Carbon Copy PLUS to talk to another PC. The symptom is most "likely that CCHELP cannot log onto CC." This section contains a simple set of tests you can run to identify and correct the problem.

One of the most common problems experienced by Carbon Copy PLUS users is two communications boards assigned to the same interrupt vector or I/O port address. This problem is generally accompanied by the NO CTS warning error message, displayed when the system is starting up. When you have two communications ports at the same address, they compete for incoming data, creating a loss of data to your PC. The following is a simple procedure to check-out your communications environment.

1. Make sure that the modem you have chosen in CCINSTAL matches the modem you are using.

2. Run CC with your modem connected as if you were going to communicate with another system. It is not necessary to have your phone connected to the modem for this test.

3. Press **<F8>** to choose Data Link Maintenance.

4. Press **<F2>** to choose Data Link Diagnostics.

5. The DTR, RTS and CTS indicators in the lower left box should say ON. CXD should say OFF. If not, then you may have two communications ports configured for the same address or a cabling problem between the communications board and the modem. Refer to the cabling diagrams in this document for more details.

6. Press "[" to turn DTR OFF. If your modem has a DTR indicator light, you should also see the light under DTR on your modem go off. Press "[" again and the light should go on. If not, then you may have two communications ports configured for the same address or a cabling problem exists.

7. Call into this CC system with CCHELP, while it is in this data link diagnostics state. You will see responses from the modem in the "Remote Operator's Dialogue". These responses will include the connect strings from the modem when the remote PC calls in. You will also see the password come through the line in the dialogue box. IF YOU DO NOT SEE THE PASSWORD DISPLAYED IN THE DIALOGUE BOX, THE MODEM AND CARBON COPY PLUS ARE NOT TALKING TO EACH OTHER. You must then make sure that the COMM port that you have specified is configured properly. Please see Appendix B.

8. Type the letters

   AT

   followed by **<Enter>**. You should see "AT" in the box under "Your Dialogue". You should also see the letters "OK" or "0" in the lower box under "Remote Operator's Dialogue". If you do not, then you probably have a hardware problem. Recheck you cabling and the addresses on the communications boards.

9. Type the letters

   ATDT

   followed by **<Enter>**. You should now hear a ringing or buzzing sound from your modem. To turn off the sound, type "AT" followed by **<Enter>**. If there was no ringing or buzzing sound from your computer, then you have a hardware problem, probably a cabling problem or your modem does not have a speaker.

Carbon Copy PLUS User Hints

USING A COLOR GRAPHICS CARD WITH A MONOCHROME MONITOR

If you are using a color graphics card with a monochrome monitor, the initial CCINSTAL screen will appear in reverse video. You can change this by running "CCINSTAL M."

WHEN RUNNING CC OR CCHELP, YOUR SCREEN CLEARS AND THE CURSOR GOES TO THE UPPER LEFT HAND CORNER

You have CCINSTAL set up for the incorrect display type. For instance, if you have a monochrome card but a color monitor, you should have the display type set to monochrome; otherwise your screen will clear and the cursor will go to the upper left hand corner.

INSTALLING ANOTHER SOFTWARE PACKAGE THAT HAS A COMMUNICATIONS OPTION USING CARBON COPY PLUS

For instance, Symphony MUST be installed for "NO" communications device. If this option is installed, Symphony will not work with Carbon Copy PLUS. Consult your Symphony manual for installation instructions.

USING XTREE WITH CARBON COPY PLUS

In order to run Executive Systems, Inc. XTREE, CCHELP must be installed for Systems Type. . .**Enhanced AT or PS/2 Style** (see chapter 2), regardless of the type of system you have.

40 COLUMN MODE

Some software packages utilize the non-standard 40 column mode. Carbon Copy PLUS does not support 40 column mode. You can expect adverse reactions when entering and exiting the menus.

USING AT&T 6300 SERIES WITH A COLOR MONITOR

Set system type to IBM compatible.
Set display type to non-IBM, no snow.

COMMUNICATIONS OVER 9600 BAUD

Some COMM ports have an older slow 8250 chip in them. (This chip is generally upgradable.) This will cause frequent loss of data, hence errors when communicating over 9600 baud.

RECEIVING AN IRQ ERROR MESSAGE

You will receive an IRQ error message upon starting Carbon Copy PLUS if one of the following three conditions exist:

1. You have two COMM ports configured for the same address.

2. You only have one COMM port in your system, but it is configured for COM2; therefore, the IRQ has been jumpered incorrectly.

3. You have a loose jumper or switch either on your COMM port or on multi-function expansion card. The jumper addresses for Carbon Copy PLUS should be set as follows:

COMM PORT	INTERRUPT REQUEST #	ADDRESS
COM1	IRQ4	3F8
COM2	IRQ3	2F8
COM3	IRQ4	3E8
COM4	IRQ3	2E8
OTHER	can be programmed for your correct IRQ and address	

Refer to the technical documentation that accompanied your communications device for instructions on how to change them.

RUNNING OTHER SOFTWARE PACKAGES WITH CARBON COPY PLUS

Make sure that the package is not installed for a communications function. If it is, reinstall, disabling the communications feature.

If you are having problems with memory resident programs, make sure that Carbon Copy PLUS is put into memory first. For instance, in your AUTOEXEC.BAT put CC first, then Sidekick.

IF YOU STILL HAVE A PROBLEM

If you encounter a problem while using Carbon Copy PLUS that you can't resolve, Meridian Technology, Inc.'s Technical Support group will be able to offer assistance. You may call:

1-714-261-1050

BEFORE CALLING, please do the following:

- Check to see that your PC, printer, modems, peripherals, and Carbon Copy PLUS are set up as described in this manual.

- Locate yourself near your PC. Have the following information ready:

Carbon Copy PLUS Version _____

Carbon Copy PLUS Serial # _____

Purchase Date _____

Type of Computer and Manufacturer _____

Peripheral Boards _____

Communications Boards _____

Display Model _____

Turbo or Expanded Memory _____

On network as server or node? _____

Synchronous Hardware Settings _____

Printer Name and Model Number _____

Modem Type _____

Baud Rate Setting _____

Memory Resident Programs _____

Keyboard Handlers _____

Problem Description _____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX F

Programming Concerns for Advanced Users

Hidden CCINSTAL Options

CCINSTAL includes hidden options that let you change highly technical operating parameters. The only time you may need to change any hidden options is if you want to increase security or if you are experiencing difficulties establishing a connection or transferring data.

To display the Hidden Options screen, invoke CCINSTAL. When the Carbon Copy PLUS System Parameters screen appears, hold down the **<Shift>** key while you press the double vertical bar key:

<Shift> **¦**

The following hidden options are available. The syntax appears in bold and the range appears in parentheses.

1 — System Vector 0000 (HEX 00-FFFF)

This option sets the address in memory that contains information which indicates whether Carbon Copy PLUS is active. To determine whether Carbon Copy PLUS is running, query this address. If 0 is returned, Carbon Copy PLUS is not loaded; if 25 is returned, Carbon Copy PLUS is loaded.

The default address is 0:047C. This may be changed to any address within page 0 only. You should never need to change this setting unless you are experiencing problems running Carbon Copy PLUS and you are using a PC compatible system which you suspect uses the same area of memory.

2 — Encryption Code 00 00 00 (HEX 00-FF)

When the encryption code is set to a value other than 0, only those callers who have the same encryption code set on their copies of Carbon Copy PLUS are allowed access to your system. CC and CCHELP must use the same encryption code in order to establish a connection. The default value is 0 (no encryption). You may also change these values by running CCSECURE as described in Chapter 2.

3 — Scan Rates 00 (DECIMAL 0-99)

This option determines how many timer ticks may elapse before Carbon Copy PLUS checks for screen change information. The default value is to check every 9 timer ticks, or approximately every half second. Increasing this time speeds up interactive video updates, but also changes the frequency with which Carbon Copy PLUS looks for video changes.

4 — Rec Char Timeout 0 (DECIMAL 0-60)

The received character timeout option applies only to CCDOS. It determines the maximum delay that can occur between characters within a packet received over the data link before timeout occurs. If Carbon Copy PLUS is still waiting for the next character when timeout occurs, the packet is resent. After 10 sequential timeouts occur, the connection is terminated. You may want to increase the received character timeout during noisy connections where it can take a long time for a character to be received.

Press the arrow keys to change the timeout value, and press **<Enter>** to select the displayed value. The default value is to wait for up to 9 timer ticks, or approximately one half second. Set a higher value for very poor telephone connections during which it could take a long time for a character to be received.

5 — Wait for ACK 0 (DECIMAL 0-60)

This option is only applicable during CCDOS. It determines the maximum delay that can occur between packets received over the data link before timeout occurs. If Carbon Copy PLUS is still waiting for an ACK character when the timeout occurs, the packet is resent. After 10 sequential timeouts occur, the connection is terminated. You may want to increase the wait for ACK timeout during noisy connections where it can take a long time for a packet to be received.

Press the arrow keys to change the timeout value, and press **<Enter>** to select the displayed value. The default value is to wait for up to 9 timer ticks, or approximately one half second.

6 — Send Cursor type YES (YES/NO)

This option controls whether Carbon Copy PLUS sends information about the cursor type over the data link. Some applications continually broadcast cursor type information, which can cause degradation of performance over a data link. If you are remotely accessing a host application and performance is very slow, try setting this option to **NO**.

7 — Force Error Check NO (YES/NO)

Certain video boards do not display information correctly when CCHELP receives screen data during an error-free data link. If you are running CCHELP and your screen displays garbled information during an error-free connection, try setting this option to **YES**. Both CC and CCHELP must be running Carbon Copy PLUS Version 5.1 for the **YES** setting to have an effect.

8 — Convert color to monochrome NO (YES/NO)

This option applies only to CC. Set this option to **YES** on the host PC (CC) only if the host PC has a color monitor and is connected to a remote PC (CCHELP) that has a monochrome monitor. Setting this option to YES converts the text attributes received from CC so that the text displays properly on the CCHELP screen.

9 — Hook into INT-10 NO (YES/NO)

Set this option to **YES** only if you want to use the Programming Interface described in the following section of this appendix.

Programming Interface

Carbon Copy PLUS contains programmable functions that are provided to let application programs control certain parts of Carbon Copy PLUS. These functions are intended for programmers with IBM PC coding experience only. Meridian Technology, Inc. will not provide technical support on the Programming Interface.

To enable Carbon Copy PLUS's programming interface, set the **9 - Hook into INT-10** hidden configuration option to **YES** as described in the previous section of this appendix. The INT 10H request must be issued with register AH set to 0FFH and AL set to the function request number.

1. Return Status to Indicate whether CC and CCHELP are connected.

   This function returns a 0 in register BL if CC is NOT connected to CCHELP and returns a 1 in register BL if CC is connected to CCHELP.

   Example:

```
MOV     AH,OFFH
MOV     AL,0
INT     10H
```

   On Exit: BL = 0 means that we are not connected
   BL = 1 means that we are connected

2. Perform a Disconnect

   This function disconnects and resets the line if the Host or CC side is connected to CCHELP.

   Example:

```
MOV     AH,OFFH
MOV     AL,1
INT     10H
```

3. Return a Pointer to the Last Phone Number dialed by CC.

   This function returns a double word pointer in ES:DI to the last number dialed by CC. The string pointed to by ES:DI is terminated by a null (0).

   Example:

```
MOV     AH,OFFH
MOV     AL,2
INT     10H
```

   On Exit: ES holds the segment of the double word pointer
   DI holds the offset of the double word pointer

Suppose you had an array in your local data area to which you wanted to copy the phone string. Suppose this array is called PHONE_STRING. Then the following code placed after the INT-10 request would do this:

```
DO_COPY: MOV    SI,OFFSET PHONE_STRING      ; WHERE TO COPY TO

COPY_BYTE:

        MOV     AL,ES:[DI]              ; GET A BYTE
        MOV     [SI],AL                 ; COPY IT
        CMP     AL,0                    ; END OF NUMBER?
        JZ      END_COPY                ; YES, END OF COPY
        INC     SI                      ; NO, UP THE POINTERS
        INC     DI
        JMP     COPY_BYTE               ; AND COPY ANOTHER BYTE
END_COPY:

        ...
        ...
```

INDEX

D

E

F

Section II Table of Contents

Chapter 1 Introduction

Chapter 2 Basic Operation

Chapter 3 File Transfers

Chapter 4 Other Emulator Menu Commands

Chapter 5 Script Files

Appendices

CHAPTER 1

Introduction

Overview

The Carbon Copy terminal emulator lets you operate remote computers, such as mainframe computers, from your PC. You can use the local keyboard and screen exactly as you would use a terminal attached directly to the remote computer. Or, by using "script" files, you can make Carbon Copy PLUS operate the remote computer automatically.

This section of the manual calls the computer running any program the "host."

The terminal emulator can use the PC's modem to contact the host through the phone network. You can use Carbon Copy PLUS's Call Table to quickly select a host and place a phone call. Except for these similarities, the terminal emulator is completely separate from the rest of Carbon Copy PLUS. For example, you would not use the terminal emulator to call a host PC (CC.EXE) using Carbon Copy PLUS.

EMULATIONS

You can set the terminal emulator to act as though your PC were a DIGITAL VT-100 or VT-52, TeleVideo TVI-920, or IBM 3101. (Use the "A" Setup Menu command presented in Section 4.) You can also set the emulator not to respond to terminal commands for any of the terminal models.

The emulation of the DIGITAL VT-100 terminal is limited by inherent limitations of the PC screen. It does not support these features of the VT-100: double-height and double-width characters.

Installation

The terminal emulator is included in all copies of Carbon Copy PLUS. Therefore, when you install Carbon Copy PLUS, as described in Chapter 2 of the Carbon Copy PLUS User's Guide, you have installed the terminal emulator.

CONFIGURATION

The settings you specify using CCINSTAL apply to the terminal emulator just as they do to the rest of Carbon Copy PLUS. For example, you select the communication line to be used to contact the host, the type of modem present, certain timing and error recovery parameters, and the use of color on the PC screen.

INSTALLING NAMED HOSTS

When you use CCINSTAL to edit the Call Table, pressing **<F5>** marks the current entry in the Call Table as an "Emulator Entry." A copy of the Setup Menu appears. This menu is discussed in Chapter 2. The settings in the Setup Menu control the relationship between your keyboard, the host, and the PC screen.

Defining an Emulator Entry in the Call Table makes the specified settings take effect whenever you call that host using its Call Table Entry.

CHAPTER 2

Basic Operation

Operation

You can select the terminal emulator from the Control Screen of CCHELP, by using the **<F7>** key. Here are the complete steps to activate the terminal emulator:

Step 1: From DOS, type **CCHELP** and press **<Enter>**.

Step 2: Wait until Carbon Copy PLUS resets the modem and the Control Screen appears.

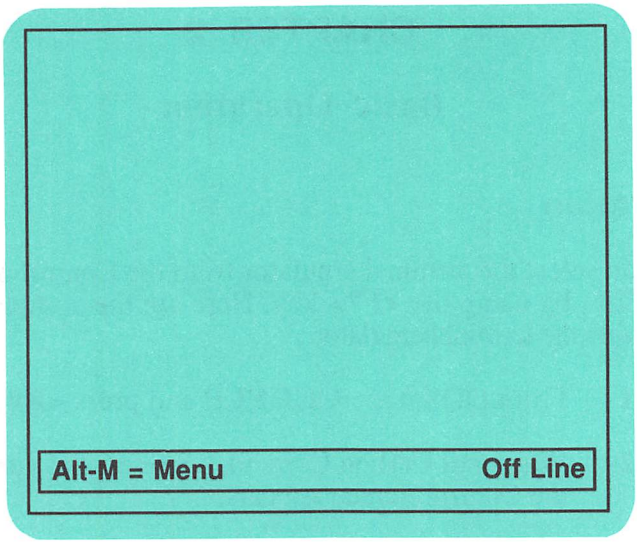
Step 3: Press **<F7>**.

After entering the terminal emulator, you must set up the emulator to be compatible with the host (or use preset settings), before placing a call.

The screen you see after pressing **<F7>** is called the Terminal Screen. When you place a call and make a connection to a host, the host's output appears on this screen just as it would on the screen of a real terminal. The bottom line of the screen reminds you that you may press **<Alt-M>** to invoke the Terminal Emulator Command Menu.

When the Terminal Screen appears, the **<Alt>** key is the only way to give commands to the terminal emulator. The **<Alt>** key works like the **<Shift>** and **<Ctrl>** keys: You hold down **<Alt>** while pressing a letter key. The different letters select different commands to the terminal emulator. Any other keystroke you type goes directly to the host.

<Alt-M> invokes the Terminal Emulator Command Menu. It appears in place of the Terminal Screen. (The text on the Terminal Screen will reappear when you are finished using the menu.) The menu contains commands you can select by just pressing a single letter key.



You don't have to use the Terminal Emulator Command Menu. All menu commands are available from the Terminal Screen. Just hold down the **<Alt>** key and press the same letter you would use to select the command from the menu. For example, the menu says that the letter **S** calls the Setup Menu. This means you can invoke the Setup Menu directly from the Terminal Screen by pressing **<Alt-S>**.

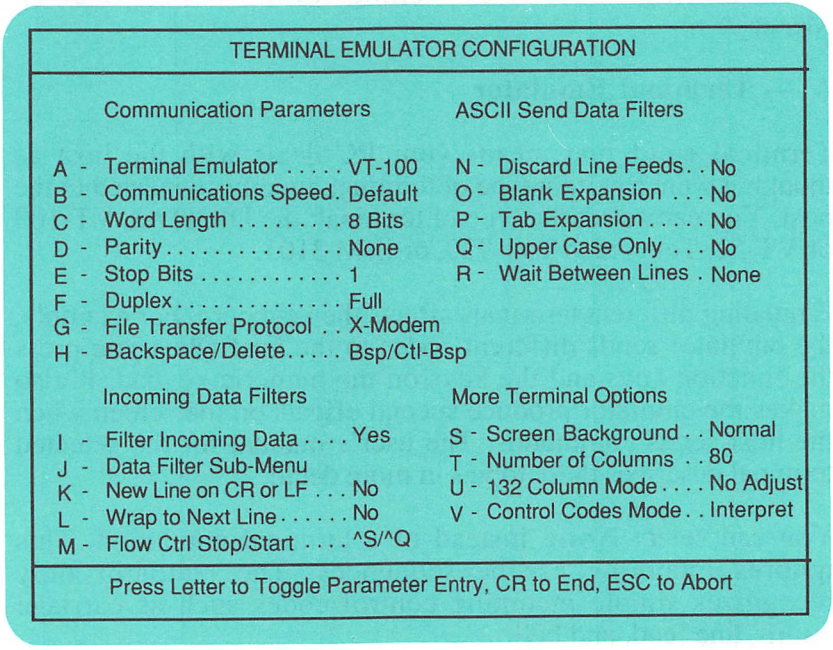
Terminal Emulator Command Menu

A - ASCII File Transmission
B - Break Transmission
C - Capture File Toggle
D - Local DOS Gateway
E - Execute a Script File
F - Edit Translate Table
G - Go (Call) Host System
H - Help Screens
I - Initialize the Comm Port
K - Keep or Save System Parameters
L - Load System Parameters
M - Menu (This Menu)
N - New Capture File
O - Online/Offline toggle
P - Printer Output Toggle
Q - Quit-Return to Carbon Copy
R - Receive a File
S - Setup Menu
T - Transmit a File
U - Script Command List
V - View Data Off Screen
W - Write Screen Image to Disk
X - eXit Program-Go to DOS
Y - Clear Terminal Screen
Z - Define Function Key

Enter Command Letter:

Setup Menu

The terminal emulator has a Setup Menu that tells it how to communicate with a host. You reach the Setup Menu from the Terminal Emulator Command Menu using the letter **S**, or from the Terminal Screen by pressing **<Alt-S>**.



You can also reach the Setup Menu from CCINSTAL. (CCINSTAL is the setup procedure.) When you use the Call Table to define a host's phone number, you can store a setup that only applies to calls to that host. If you make different settings for each host you call, the terminal emulator always applies the correct settings for each situation. When you call a host for which you haven't defined a setup, the emulator uses the settings in its own Setup Menu.

To reach the Setup Menu from the Call Table, define a host by name and phone number, or move to a line that's already defined, then press **<F5>**. A Setup Menu appears. The settings you pick will apply to all calls to this host. In place of the password in the Call Table, you will see:

Emulator _ Entry

The Setup Menu has a variety of settings, each labeled by a letter. When you see the Setup Menu, press the letter to step through the available commands. When the setting you want appears on the screen, it is selected. Press **<Enter>** to save your setup choices, or **<Esc>** to quit out of the Setup Menu.

The following describes the settings available on the Setup Menu:

A — Terminal Emulator

Terminal emulation means your PC deals with the host as though it were a certain type of terminal directly connected to the host. You can select the type of terminal: the DIGITAL VT-100 or VT-52, TeleVideo TVI-920, or IBM 3101.

Emulating different terminals affects the keyboard. For example, the emulator sends different codes to the host when you press the function keys and the keys on the numeric keypad. It also makes the emulator produce special effects on the screen when the host sends commands. The user's manual for the selected terminal describes these topics in more detail.

You can select **None** instead of a terminal emulation. This ignores incoming escape sequences. The emulator only recognizes simple incoming control codes such as carriage return, line feed, and bell.

You can also select **Debug**. This means that, instead of special effects on the screen, you want to see the actual control codes the host sends. In **Debug** mode, the Terminal Emulator produces the IBM character which represents the control code received from the host. For example, ^A is equivalent to "01" in Hex code. The IBM character represented by "01" appears on the screen as a smiling face icon. You can find a table of control characters and their equivalent IBM symbols in Appendix F.

In **Debug** mode, the Terminal Emulator auto-wraps data at the 81st column. There are three exceptions to this, however. Pressing ^J, ^K, or ^L will print the code and automatically

force a carriage return/line feed. This is done for compatible VT emulation.

> **NOTE: Debug** mode automatically sets you to an 80 column display.

B — Communications Speed

This is the "baud rate." Select the same speed the host will use. Higher numbers produce faster communication, but your modem may limit you to a lower number. The setting called **Default** selects the speed you chose with the **B** command on the Carbon Copy PLUS System Parameters screen in CCINSTAL.

> **NOTE:** The speed of 38.4K will not work properly on all machines. For example, PCs that run at 4.77 Mhz cannot keep up with this speed. If you are experiencing difficulties using 38.4K, lower your baud rate.

C — Word Length
D — Parity
E — Stop Bits
F — Duplex

Select word length, parity, stop bits, and duplex settings to match the host. 7 bits is the most common word length if you are using parity; 8 bits is the most common if the parity is None. This is the default. 1 stop bit is typical at all communications speeds except 110.

The Duplex setting lets you pick Half Duplex or Full Duplex. Half Duplex means the emulator moves each of your keystrokes to the screen as you type it, as well as sending it to the host. In Full Duplex, you don't see what you type until the host sends it back to your PC.

G — File Transfer Protocol

When you are sending or receiving "binary" files or other non-text files, most hosts use a file transfer protocol. Among other

things, file transfer protocols make sure the computers don't mistake data for a command. The terminal emulator supports the XMODEM, XMODEM Batch, YMODEM, YMODEM Batch Kermit Binary, and Kermit Text file transfer protocols. XMODEM sends data in packets of 128 bytes. YMODEM sends data in packets of 1K bytes until the remaining data is less than 1K; at that point, it sends the data in 128-byte packets. If you need to transfer more than one file, you can use XMODEM Batch or YMODEM Batch. When using either of these protocols, you do not need to list each file to be transferred; you may use "wild cards" (for example, "*.TXT"). Make sure that the host uses the same file transfer protocol that you select in the Setup Menu.

H — Backspace/Delete

Normally, the <- key at the upper right corner of the main keyboard (**<Bsp>**) produces the BS (backspace) key; holding **<Ctrl>** down and pressing this key (that is, pressing **<Ctrl Bsp>**) produces DEL. In DIGITAL environments, DEL is used more often than BS. Setting Backspace/Delete to the Ctrl-Bsp/Bsp setting lets you produce DEL by just pressing **<Bsp>**. You can produce BS by pressing **<Ctrl-Bsp>**.

INCOMING DATA FILTERS

Incoming data filters, the settings **I** through **M**, affect text that the host sends to the PC. When emulating certain types of terminals, commands from the host can change these settings. The settings you choose from the Setup Menu are the ones in effect at the start of the session.

I — Filter Incoming Data

If the host sends certain non-text characters, or if noise on the phone line produces non-text characters, you may see strange symbols or other unexpected effects on the screen. Turning on the data filter should prevent these effects. The data filter does these things to characters received from the host:

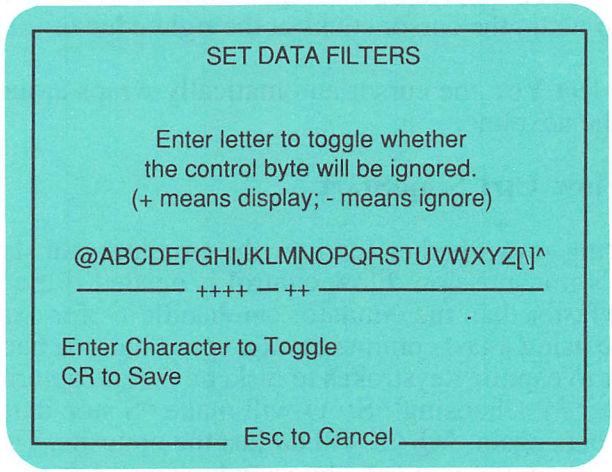
- Masks out the high-order (8th) bit. This converts codes 128-255 to the range 0-127. (If setting C is 7 bits, there is no 8th bit.)

- Removes control codes (codes 0-31) as specified by the Filter Submenu (setting J, described below).

J — Filter Submenu

The filter submenu lets you tell the emulator to ignore some or all control codes. This submenu presents 32 control letters, with "+" or "-" below each one. The emulator discards codes you have marked with "-".

When you see a filter, press any letter key to switch the corresponding control code on or off. For example, control-G is the bell code in DIGITAL terminal emulation. If you press G until a "-" appears on the screen under G, the host will not be able to sound the PC's alarm by sending control-G. The filter submenu only takes effect when you activate filtering using the **I** setting.



NOTE: Because of the specific nature of VT100 and VT52 emulations, filtering is not allowed.

K — New Line on CR or LF

Most hosts separate lines of text by sending carriage return (CR), then line feed (LF). CR moves to the left edge of the screen; LF moves down one line. On hosts that send only CR or LF between lines, turn this setting on. Then either CR or LF will perform both cursor movement functions.

- If separate text lines
  appear like this
  on the screen,

  or if lines write over one another on the same line of the screen, switch this setting to **Yes**.

- If everything from the host comes out double-spaced, switch this setting to **No**.

L — Wrap to Next Line

The host may send a longer line of text than the screen can display, without providing carriage returns or line feeds. If you select **No** wrap, the cursor sticks at the right edge of the screen.

If you select **Yes**, the cursor automatically wraps around to the start of the next line.

M — Flow Ctrl Stop/Start

This setting says whether and how the emulator can slow down the host's transmission. Flow control is needed if the host can transmit faster than the emulator can handle — for example, if you were using a fast communication speed but you had told the emulator to capture keystrokes to diskette (see "Capturing Text" in Chapter 3). Choosing **^S/^Q** will make ^S stop data and ^Q start the data again. **^Q/^S** will do just the opposite. This option is provided so that you can choose whichever one your host is using for flow control.

OUTGOING DATA FILTERS

Outgoing data filters, settings **N** through **R**, affect text sent to the host using the **A** command (ASCII File Transmission) on the Terminal Emulator Command Menu. These filters make the emulator send text that is not exactly the text in the file, but filters never change the contents of the stored file.

N — Discard Line Feeds

Most hosts expect just a return character from the terminal at the end of a line. (You typically produce this by pressing the **<Enter>** key.) Some files contain carriage return plus line feed at the end of a line. This setting discards the line feeds.

O — Blank Expansion

This setting adds a space to any blank line in the file. This setting is required when using some hosts that interpret blank lines in a special way. For example, a blank line might signify the end of the transmission.

P — Tab Expansion

This setting converts tabs in the file to 1 to 8 spaces — whatever is enough to move the cursor rightward to column 9, 17, 25, 33, or so on (where the leftmost column is column 1).

Q — Upper Case Only

Some host programs cannot deal with lowercase letters. This setting converts all text in the file to capital letters.

R — Wait Between Lines

If the emulator can send data faster than the host can process it, you can use this setting to force a delay of **0.1**, **0.5**, or **1.0** seconds after every line.

If you specify **Manual**, the emulator asks you to press any key after every line, to explicitly direct it to send the next line.

If you specify **Echo**, the emulator waits for the host to send a carriage return before the emulator sends the next line.

S — Screen Background

Here you have the choice of a normal display or a reverse video display. The default is **Normal**.

T — Number of Columns

The VT-100 terminal emulation has the capacity for a 132-column display. If you wish to utilize this capability, toggle **<T>** from **80** to **132**. The default for this command is **80**.

U — 132 Column Mode

If your terminal is in 132 column mode, choosing **Adjust** will always keep the cursor in view, moving across the 132 columns of data as the cursor moves. If you select **No Adjust**, the cursor may not always be visible, and you may need to scroll manually to see the cursor.

V — Control Codes Mode

Your choices under this command are **Interpret** and **Display**. **Interpret** is the default setting. In this mode, all special directions contained in a program, as defined by control characters and escape sequences, will be followed. The **Display** option is used for debugging purposes. (Control codes are not interpreted as commands when in **Display** mode.) All control characters are shown as special IBM symbols that represent their values.

Pressing **<Esc>** leaves the Setup Menu and discards any changes you specified since calling the menu to the screen.

Translating Incoming and Outgoing Characters

There is a method of data filtering which is performed on all incoming data before it is displayed on the Terminal Screen and outgoing data before it is sent. These data filtering and translating tables are set up by using the emulator command **<Alt-F>**. By selecting this command you will see first, a display table for "Incoming Data Translate Table." This table is for mapping the incoming data against the row and column positions to derive the character which will be displayed on the Terminal Screen.

On the bottom line of the translate table screen you will see:

F1=Change Value F2=Flip Translate State (Now sss)
F3=Switch Tables Esc=Exit

The **<F1>** key will prompt you for the value of the character to be changed. First enter the one byte hexadecimal character which you wish changed, then enter the value to which you wish that character to be translated. The **<F2>** key will enable the translate state or disable the translate state. The current state of translation is displayed in "sss" as either **OFF** or **ON**.

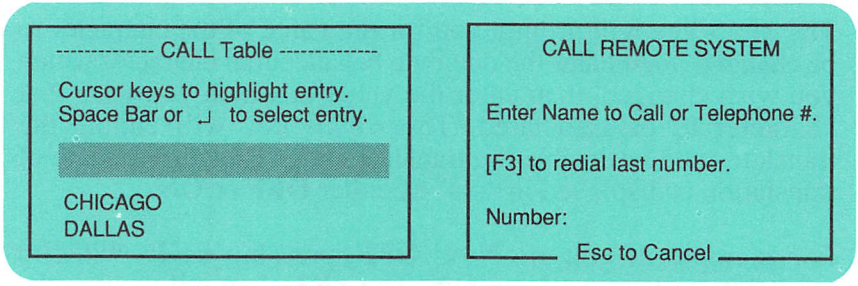
For example: If you are **Now OFF**, pressing **<F2>** will flip your state to become **Now ON**. The **<F3>** key will switch the tables from "Incoming Data Translation Table" to "Outgoing Data Translate Table." Both the **<F2>** and **<F3>** keys act as toggles for the activity of the translation state and the translation screen respectively.

The **<Esc>** key is used to exit from the translation table screen. All values entered in the tables are saved in memory during this emulator session. The values are in effect only if you "Flip the Translate State" to **Now ON**. These values can be permanently saved in a file by performing the **<Alt-K>** command of the Emulator Options (described under "Defining Function Keys" later in this manual).

Placing a Call

You place a call to a host using the **G** command in the Terminal Emulator Command Menu (or pressing **<Alt-G>** from the Terminal Screen). You will see a blank to fill in, and names from the Call Table in alphabetical order.

- You can simply type in the host modem number, followed by **<Enter>**.
- You can type a name from the Call Table and press **<Enter>**. (When you type the first letter, the Call Table changes to show you all hosts starting with that letter.)
- You can use the up and down arrow keys to select a host from the Call Table. Press **<Enter>** to call the selected host.



Ending a Call

The **Q** command from the Terminal Emulator Command Menu (or pressing **<Alt-Q>** from the Terminal Screen) hangs up the phone and returns you to the main part of Carbon Copy PLUS.

There is no way to return to Carbon Copy PLUS without hanging up the phone. The rest of Carbon Copy PLUS does not apply to hosts.

Some hosts require that you log off or do other special things to prepare the host for the end of the phone call.

The **D** (Local DOS Gateway) command leaves Carbon Copy PLUS **temporarily** and goes to DOS. The **D** command does not hang up the phone. One situation where you might use this command is when you have placed a phone call and realize you have to use DOS to produce a file to send to the host. To go back inside the terminal emulator, type the word **EXIT**, as you would type a DOS command, then press <**Enter**>. (You will see a reminder of this after you use the **D** command.)

Remember that your phone line remains in use, and any phone usage charges continue to accumulate, while you are in DOS.

To return to DOS for good, use the **X** command. This will disconnect the call, bringing you totally out of Carbon Copy PLUS and back to the DOS prompt.

CHAPTER 3

File Transfers

Sending Text Files

Any text file that resides on your PC's disks can be sent to the host. Before sending any file to the host, you must think about the effect on the host. For example, it may be necessary to run a program at the host to prepare it to receive the transmission. If you do not, the host may interpret each line of the transmitted file as a command.

The **A** command on the Terminal Emulator Command Menu (**<Alt-A>** from the Terminal Screen) tells Carbon Copy PLUS that you want to send an ASCII text file. The emulator asks you for the name of the file. Be sure to type a complete file specification; include the drive name (such as C:) if the file isn't on the currently-logged drive.

When you specify a file that exists, the emulator sends the file to the host. Once the file is sent, the emulator returns to its normal mode.

The **A** command is the easy way to send files, and can only be used to send text files. The Outgoing Data Filters discussed in Chapter 2 control all transmissions using the **A** command. For example, you can use these filters to prevent the transmission from including blank lines, line feeds, and lowercase letters.

"Exchanging Non-Text Files" later in this chapter demonstrates another way to send files, whether they are text or binary files. This method also guards against telephone line noise.

Capturing Text

General Rule

This section and the next describe situations where the emulator puts text on your PC's disk. You must specify the name of a file. If the name you type doesn't already exist, the emulator

creates it. But if you type the name of an existing file, the emulator erases the file's previous contents (**overwriting** them with the new text).

You can tell the emulator to **append** (add) text to the end of the text that was in that file before. When you type the name of the file, end it with the two characters /**A** (for Append).

For example, if you use **Overwrite**, a capture file would contain the text of your last session with the host. If you use Append, the file would contain the text of all previous sessions.

You can capture text in a file. This means the emulator moves every incoming character into a specified file as well as to the screen. Since the host usually sends your keystrokes back to you as confirmation, the resulting file becomes a transcript of both your requests and the host's responses.

If you are capturing text and you ask the host to type a file, you will capture the file (make a copy of it on your PC's disks). However, this file will also contain your request to the host, prompts, and other text you'll have to strip away later. The method discussed later in this chapter may be preferable.

The **N** command from the Terminal Emulator Command Menu (**<Alt-N>** from the Terminal Screen) lets you specify the name of a file to capture keystrokes.

You can use the non-text file transfer method discussed in the next section at the same time you are capturing keystrokes. The capture file does not capture information that the emulator and host may exchange while transferring the non-text file.

Toggling

The **C** command on the Terminal Emulator Command Menu (**<Alt-C>** from the Terminal Screen) suspends and resumes the capture of keystrokes. This lets you exclude some transactions with the host from the transcript in the capture file. When you first specify a capture file (with the **N** command), capture is

enabled. Your first use of the **C** command stops capture, but keeps the capture file open. Your next use of the **C** command starts capture again, and so on.

The emulator closes the capture file when you specify a different capture file or when you hang up the phone.

> **NOTE:** The capture file and Write Screen to Disk command generate files in non-document format and can be viewed by using the DOS "Type" command or a non-document editor.

Write Screen to Disk

The **W** command on the Terminal Emulator Command Menu (**<Alt-W>** from the Terminal Screen) is a quick way to capture part of your dialogue with the host. Whenever you use the **W** command, the emulator asks you to name a file. The current contents of the Terminal Screen go into this file.

Exchanging Non-Text Files

Programs such as XMODEM, YMODEM, and Kermit let two computers exchange files even if they contain non-text information. If one computer just sends a non-text file to another without special arrangement, problems will occur when the receiver interprets the transmission as text. For example, the file may contain control codes that could cause program interrupts, halting of data flow, or bizarre effects on the Terminal Screen.

With XMODEM, YMODEM, and Kermit, the sender puts the data into packets, and the receiver takes the data out of the packets. The two computers can synchronize with and monitor each other while transferring the file. They can even detect and correct errors caused by telephone line noise. Although this technique was devised to allow transfer of non-text files, it can be used on any file. However, the emulator and the host must both be prepared to use the same type of encoding. This means they must both be using the same program (that is, XMODEM to XMODEM, YMODEM Batch to YMODEM Batch, and so on).

Before exchanging files, make sure the **G** setting in the applicable Setup File matches the program (XMODEM,

XMODEM Batch, YMODEM, YMODEM Batch, Kermit Binary, or Kermit Text) that the host will use. Also type whatever command the host requires to activate XMODEM, YMODEM, or Kermit. This command specifies the file to be exchanged, as it is known at the host.

Starting the Transfer

The **T** command on the Terminal Emulator Command Menu (**<Alt-T>** from the Terminal Screen) transmits a file to the host. The **R** command on the Terminal Emulator Command Menu (**<Alt-R>** from the Terminal Screen) receives a file from the host. When using XMODEM or YMODEM, you now specify the name that the transmitted file has, or that the received file will be given, at the PC. (Read the general rule for naming files at the start of "Capturing Text.")

When you are sending information using XMODEM Batch or YMODEM Batch, you must specify the files that you want to send by the use of wild cards or you can specify the name of one individual file. For example, if you have five files having the extension **.EXE** in a particular subdirectory, you could copy ***.EXE** to the host, as long as both sides were using either XMODEM Batch or YMODEM Batch protocol.

If you are receiving data using XMODEM Batch or YMODEM Batch protocols, you do not need to specify a file name.

During the transfer, the emulator shows how many blocks have been transferred and what percent of the transfer is complete. Kermit also says how many retries have been required due to noise on the phone line. This information does not affect the contents of the Terminal Screen.

If you are capturing keystrokes, as described in "Capturing Text," the only keystrokes you will capture as a result of a non-text file transfer is the transaction that prepared XMODEM or Kermit at the host to transfer the file in question.

CHAPTER 4

Other Emulator Menu Commands

Send BREAK

Sending **BREAK** to the host is done by the **B** command on the Terminal Emulator Command Menu (or **<Alt-B>** from the Terminal Screen). This sends a 200ms signal. Some hosts require you to send BREAK in certain situations. For example, on some hosts BREAK interrupts a program, as ^C does in MS-DOS.

Online Help

The **H** command on the Terminal Emulator Command Menu (or **<Alt-H>** from the Terminal Screen) calls a help screen. It shows which keys on your keyboard take the place of the special keys on the emulated terminal. You will see one of the help screens, depending on which terminal you have chosen to emulate. To use the emulator as though it were that terminal, you must ignore the lettering on the function keys and on the numeric keypad and follow the key legends shown on the help screen.

Appendix D shows all the help screens.

The **U** command on the Terminal Emulator Command Menu (or **<Alt-U>** from the Terminal Screen) calls an alphabetized summary of script file steps. (Script files are discussed in Chapter 5.) Comparable information appears in Appendix B.

Initializing the Modem

Initializing the modem is done by the **I** command on the Terminal Emulator Command Menu (or **<Alt-I>** from the Terminal Screen). You must initialize (reset) the modem, for instance, if you realize after starting Carbon Copy PLUS that the modem was not on.

Errors

If so many errors occur that XMODEM, YMODEM or Kermit decides it is impossible to transfer the file as specified, the emulator hangs up the phone and goes Off-line.

Resetting the modem hangs up the phone. You may use the **<Alt-I>** command to accomplish this.

Clearing the Terminal Screen

To clear the Terminal Screen, press **<Alt-Y>**. Predictably, the **Y** command on the Terminal Emulator Command Menu does the same thing, but you don't see any effect until you return to the Terminal Screen. While **<Alt-Y>** clears the Terminal Screen, it sends no codes to the host. You might clear the screen to prepare a clean background for a report to be sent from the host. Then you could move the screen to the printer (by pressing **<Shift-PrtSc>**) or to disk (with **<Alt-W>**).

On-line/Off-line/Local

On-line means you are in contact with the host. Your keystrokes go to the host; the host's responses go to your screen. (If you have set Half Duplex, as described in Chapter 2, your keystrokes may also go directly to the screen.)

If the connection is broken, you are **Off-line**. Your keystrokes go nowhere (unless you hold down the **<Alt>** key) and normally, nothing happens to change the Terminal Screen. To return On-Line, place another phone call to a host.

The status line underneath the Terminal Screen always tells you whether you are On-line or Off-line.

A third possibility is **Local**. When you go Local, your keystrokes go directly to the Terminal Screen. (If you are Local and the host continues to send, the emulator asks the host to stop

sending, using the technique you specified with the **M** Setup Menu command. The emulator remembers text the host has already sent, and puts it on the Terminal Screen when you return On-line.)

Pressing **<Alt-O>** switches to Local. Pressing **<Alt-O>** again goes back On-line (or Off-line). The **O** command on the Terminal Emulator Command Menu does the same thing.

You might switch to Local after receiving a report from the host. You could then use your keyboard to make cosmetic changes to the report, in preparation for sending the screen to the printer (with **<Shift-PrtSc>**) or to disk (with **<Alt-W>**). You can type any change you want at any position on the screen, provided you first move the cursor to that position. View the help screen by pressing **<Alt-H>** to see which keys on the keyboard serve as the arrow keys.

Printed Copy

The **P** command on the Terminal Emulator Command Menu (or **<Alt-P>** from the Terminal Screen) makes a printed copy of your dialogue with the host.

When you first use this command, the emulator starts making copies of characters the host sends. One copy goes to the screen as usual; another copy appears on the printer. Using this command again switches printing off, and so on.

Another way to get printed output is to press **<Shift-PrtSc>**. As with much other PC software, this keystroke makes a printed copy of the entire screen.

If you use these two techniques together, the printed listing may contain two copies of certain lines from your dialogue with the host. This may be confusing.

Defining Function Keys

General Rule for Naming Function Keys

The numbers 1 through 10 refer to **<F1>** through **<F10>**, respectively. You can also type "F1" through "F10". You can type "S1" through "S10" to separately define the keys when the **<Shift>** key is held down — that is, **<Shift-F1>** through **<Shift-F10>**. Similarly, "C1" through "C10" refer to **<Ctrl-F1>** through **<Ctrl-F10>**. "A1" through "A10" refer to **<Alt-F1>** through **<Alt-F10>**. In all, there are 40 function keystrokes you can refer to.

The function keys **<F1>** through **<F10>** on your keyboard play the role of certain keys on the terminal you are emulating. The help screen (press **<Alt-H>**) shows which keys do what. For example, if you have selected emulation of a DIGITAL VT-100 terminal, the **<F1>** key on your keyboard acts like the "PF1" key on the VT-100.

If you never use some of these keys (for example, PF1), you can redefine the function key on the PC. You redefine a key by specifying the key and a piece of text. You can redefine any or all of the function keys **<F1>** through **<F10>**. (Any key you don't define keeps its built-in meaning.) For any key, you can also make separate definitions that apply when you are holding down **<Shift>**, **<Ctrl>**, or **<Alt>**.

Every time you press a function key that has a special definition, the emulator sends the stored text to the host. This can save you typing time.

Function keys have additional uses discussed later in this section.

The **Z** command on the Terminal Emulator Command Menu (or **<Alt-Z>** from the Terminal Screen) lets you make one definition. Instructions appear on the screen. Follow these steps:

- Specify the desired key, following the general rule at the start of this section.

- To remove a definition, just press **<Enter>**.

- To define or redefine the key, type a space, then type the text you want the emulator to send to the host whenever you press the key in question. Press **<Enter>** when you are done typing the text.

Certain symbols in a definition have special effects:

- If you include ^ in a definition, it and the following character define a single control code. For example, ^J means line feed; ^[means ESC (escape). Typing ^^ in a definition produces a single ^ character, not the RS control code.

- If you include ¦ (or ^M) in a definition, the emulator will send the carriage return when you press the function key.

- If you include ~ in a definition, the emulator will pause for 2 seconds when you press the function key.

- The character $ has a special meaning discussed later in this section.

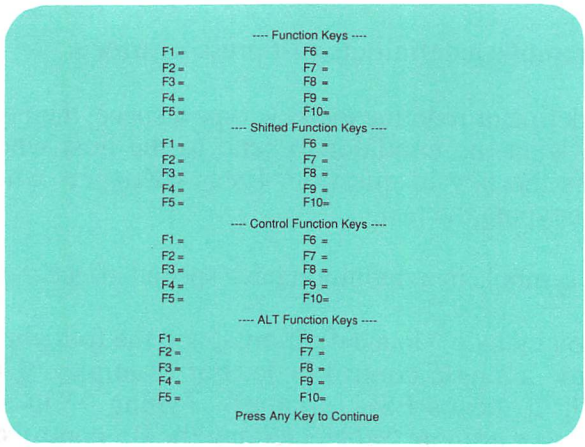
For example, you might define the **<F5>** key to request two directory listings by pressing **<Alt-Z>** and typing this definition:

F5 DIR *.SRC¦~DIR *.OBJ

If, after pressing **<Alt-Z>**, you just press **<Enter>**, the emulator uses the entire screen to display the current definitions of all 40 keys, as shown on the next page.

Buffers

The 40 key definition areas are also holders for pieces of text, even when you don't want the text to be automatically sent to the host. For example, one form of the ASK script file step discussed in Chapter 5 asks the typist to type a line of text and puts that text in a specified function key, which is buffered for later use.



Auto-Responders

Any or all of the 40 key definition areas can be an auto-responder. An auto-responder looks for some text from the host and automatically sends text back to the host. Any key is an auto-responder if its definition is —

- A dollar sign
- The text you want to wait for from the host
- Another dollar sign
- The text you want to send to the host.

For example, say you define **<F2>** as:

$ — More — $¦

Now **<F2>** is an auto-responder that waits for the host to send "—More—", then replies with a carriage return (indicated by the "¦" in the definition).

An auto-responder doesn't care whether the host sends capital or lowercase letters. An auto-responder ignores any spaces or control characters the host sends (such as tab, carriage return, or line feed). So it can match text even if the host divides the text between lines.

Many auto-responders can be active while you are typing. Several auto-responders might receive what they were waiting for at the same time. The first function key auto-responder satisfied in the list will be the one to take effect. For example, if both **<F5>** and **<F8>** were waiting for "abc", then the **<F5>** would take effect.

Although script files have ways to define function keys (see Chapter 5), and could define a key as an auto-responder, all auto-responders become inoperative during the time a script file is running. (You can use the WHENEVER step discussed in Chapter 5 to automatically respond to text from the host.)

System Parameters

System parameters include the 40 key definitions and the current values of all Setup Menu settings. You can store system parameters in a file. Its file type is .PRM unless you specify a different file type.

The **K** (keep) command on the Terminal Emulator Command Menu (or **<Alt-K>** from the Terminal Screen) saves the system parameters in a file. You specify the name of the file. If you don't specify a file type, the emulator uses ".PRM" as the file type.

The **L** (load) command on the Terminal Emulator Command Menu (or **<Alt-L>** from the Terminal Screen) recalls the system parameters from a file where you previously stored them with **<Alt-K>**. As with **<Alt-K>**, you must name the file to load.

Automatically Loading System Parameters and Function Keys

When you dial into a system, you can automatically load the appropriate system parameters (**<Alt-S>**) and function keys (**<Alt-Z>**) that you need for the session. To do this, follow the steps outlined below.

1. Define (**<Alt-Z>**) and keep (**<Alt-K>**) your set of function keys as described earlier in this chapter. Be sure that you keep them **without** an extension name. For instance, when prompted to the parameters file name, simply type:

   CSERV <Enter>

   This will create a file in your working directory called CSERV.PRM.

2. Run CCINSTAL and access the Call Table as described in Section I, Chapter 2.

3. Add a Call Table entry. For this example we will call it "COMPUSERVE." Enter the telephone number for your local CompuServe in the **telephone number** field.

4. Move into the **password** field. Choose the **<F5>** command to add an emulator entry.

5. You will see a complete list of setup parameters identical to the **<Alt-S>** command in the Terminal Emulator Command Menu. Make any changes to these parameters that you may need in order to access your local CompuServe. In this example, the only option we will change is **W — Script file**. Select **W**. You will then be prompted for a script file name. This script file should be generated following the guidelines specified in Chapter 5. Type:

   CSERV <Enter> X

   The **X** is used to exit to the previous menu.

6. When you return to your Call Table, you will see that the password field now shows the entry **Emulator_Entry**.

   NOTE: By completing steps 1 through 6, you have made an automatic Call Table entry that will not only call CompuServe, but will also do the following:

* Automatically put you into Terminal Emulation Mode.

* Load your script file AND automatically load the parameters file it finds under your script file. This happens because you specified a script file name in step 5. (Since both the parameters file and the script file were named **CSERV**, they both will be loaded automatically once you place this call.)

7. Simply run CCHELP and press **<F1>**. Select the **COMPUSERVE** entry.

8. Your modem will dial into CompuServe. You will automatically go into Terminal Emulation mode, automatically log into CompuServe, and automatically have all of your function keys loaded and ready to work.

View Data Off Screen Mode

A capture file records your dialogue with the host. Whether or not you're using a capture file, there is a way to view text from your session with the host, even if it has rolled off the top of the screen. The emulator remembers about 120 lines of dialogue.

The **V** command on the Terminal Emulator Command Menu (or **<Alt-V>** from the Terminal Screen) enters View Mode. View Mode looks just like the Terminal Screen (the bottom line of your screen alerts you that you are in View Data Off Screen Mode). In View Mode, you have the following options:

- Pressing the up-arrow key calls old lines of text back to the screen so you can review your session with the host. Pressing the down-arrow key goes forward in time.

- The PgUp and PgDn keys on the keypad move the cursor a page at a time. The Home and End keys instantly move to the start or the end of the View Data Off Screen Mode memory. For example, pressing Home shows you the earliest communication that View Data Off Screen Mode still remembers.

- Pressing **C** or **P** captures or prints text from the View Data Off Screen Mode memory (see below).

- Pressing **<Esc>** returns to the "live" Terminal Screen. You must do this before selecting the Terminal Emulator Command Menu or using the **<Alt>** key.

  NOTE: View Mode is not allowed in the 132 column mode.

Capturing and Printing

You can set the emulator to capture keystrokes into a disk file or copy keystrokes to a printer . These functions normally make a transcript of your ongoing dialogue with the host. When you activate these functions from View Data Off Screen Mode, you actually make the transcript begin at some specific point in the past. Position the cursor at the line where you want the transcript to begin. Then press **C** to capture keystrokes to disk, or **P** to print keystrokes. (If you press **C**, you must then name a capture file.) The emulator copies into the capture file, or prints, the entire View Data Off Screen Mode memory starting with the line where you put the cursor.

This brings your stored or printed transcript up to the present time. When you leave View Data Off Screen Mode, the capture or print command remains in effect until you switch it off with **<Alt-C>** or **<Alt-P>**. This produces a continuous stored or printed transcript, starting at a specified time in the past, and continuing until you switch off the command.

If capture or printing is already on, then pressing **C** or **P**, respectively, has no effect. If you already specified a capture file but switched it off with **<Alt-C>** before entering View Data Off Screen Mode, then pressing **C** in View Data Off Screen Mode switches capture back on without asking you to name a new capture file.

Flow Control

The emulator is still in contact with the host during the time you go into View Data Off Screen Mode. If the host sends additional text, the emulator saves it and asks the host to stop sending (using whatever technique you specified with the **M** Setup Menu command), so you don't miss any transmission from the host by going into View Data Off Screen Mode.

CHAPTER 5

Script Files

Overview of Script Files

So far, you have read about the manual operation of the Terminal Emulator. You type to the host, and the host responds to your screen. Data may also flow from or to a file on the PC's disk, but all operations have been dependent on you to give a command, using the **<Alt>** key or the Terminal Emulator Command Menu.

The Terminal Emulator can also operate automatically, under control of a script file. The script file is a sequence of steps or commands. It reads data from the PC keyboard and from the host and can send text both to the screen and to the host. Therefore, when there is a script file controlling the Terminal Emulator, you don't type directly to the host. You just answer the script file's questions. You can see the text the script file sends to the host and the host's responses. Under control of the script file, this dialogue may also go to a disk file or to the printer.

You can have many different script files. They may control calls to different hosts or to one host where you want to do different things.

It's useful to use a script file together with a capture file (see Chapter 2). The script file sends the right commands to the host. The capture file saves the host's replies. Using these two techniques together, you can design an automatic report generator.

The Form of a Script File

Writing a script file involves thinking out the steps in exact sequence, similar to writing a computer program. It helps to run an actual session with the host and have a printed transcript of

that session when you are writing a script. Then you will know what order the host uses and how the dialogue should proceed.

You create a script file using a text editor such as EDLIN. The script file has any name you want to give it. The file's extension is typically ".CCS" (Carbon Copy Script).

On each line of the file, you type one or more steps involved in dealing with the host. A step might be sending a line to the host or to the screen, sounding the PC's alarm tone, or asking the operator for guidance.

Most lines in the script file contain one step in a dialogue involving the operator and the host. The first word in the line tells what kind of step that line contains. When you write a script file, the steps are meant to be taken in sequence, starting with the first step and proceeding through each step in sequential order. There are steps which can change the order. These will be discussed later.

To include more than one step in a line, you can type a space, followed by a colon, followed by another space (" : ") after any step, instead of going to the next line in the script file.

You may also have a line in a script file that contains no steps. It may be used as a reminder or a "comment." Any line that starts with a semicolon (" ; ") is a comment. You can see it when you edit the script file but it has no effect when you execute the script file.

There is no difference between capital or lowercase letters in a script file, except when the file contains actual text to send to the screen (the **MESSAGE** and **ASK** steps) or to the host (the **REPLY** step).

Carbon Copy PLUS script files follow the same form as the CROSSTALK program, and Carbon Copy PLUS supports the major CROSSTALK script file commands. Carbon Copy PLUS script files contain a group of keywords, chosen for compatibility with CROSSTALK, which do things the operator would normally do from the Carbon Copy PLUS Command

Menu or the Setup Menu. (All these keywords are presented later in this chapter.) For compatibility with CROSSTALK, you can abbreviate any step keyword (**JUMP**, **MESSAGE**, **WHENEVER**, and so on) by using its first two or three letters. After you have written a script file, you must compile it. Compiling script files is explained later in this chapter.

Script File Commands

Below you will find an explanation of the most commonly used script file commands. Appendix C contains an alphabetical list of all legal script file steps. You can see comparable information on the screen by using the "U" command on the Carbon Copy PLUS Command Menu (or by pressing **<Alt><U>** from the Terminal Screen).

ABORT

The **ABORT** step stops the operation of the script file and the emulator reverts to manual operation. **ABORT** maintains the telephone connection so that the operator can type to the host or start a script file again.

A script file uses **ABORT** whenever it detects a condition it cannot handle. You should write the script file so that it gives the operator a message before it ceases operation.

ALARM

The alarm tone of the PC sounds whenever Carbon Copy PLUS reaches an **ALARM** step in the script file. This step consists of the word **ALARM** by itself. Carbon Copy PLUS recognizes other forms of this step, such as "ALARM 3 NOW", for compatibility with CROSSTALK. Carbon Copy PLUS sounds the alarm, but does not use different alarm tones. ALARM is a step used by the local operator.

ASK

Input from the keyboard is read by the **ASK** step. It asks the operator for information. One form of the **ASK** step gets a single keystroke from the keyboard. You should always follow the word **ASK** with a message. This message tells the operator what to type. For example:

ASK Please press Enter to continue.

Carbon Copy PLUS displays your message on the screen, leaves the cursor at the end of the line, and waits until the operator presses a single key. The script file can use the **IF** step described later in this chapter to find out what key was pressed and take different actions depending on the key.

A second form of the **ASK** step gets an entire line of text from the keyboard (ending when the operator presses **<Enter>**). In this second form, right after the word **ASK**, you must type a space, the "@" character, and the name of a function key, **<F1>** through **<F10>**. (You can actually use all 40 function keystrokes, using **<Alt>**, **<Ctrl>**, and **<Shift>**. See the general rule for naming function keys in Chapter 3.)

Carbon Copy PLUS saves the line typed by the operator under the specified function key. Now by just pressing that function key, the operator can send the line to the host. By pressing the key several times, the operator can send the line repeatedly. (See also **REPLY**.)

If the line the operator types begins with a "$" the key becomes an auto-responder, as described in Chapter 1. However, auto-responders temporarily lose their effect while a script file is running.

Following the name of the function key, you should always type a message that tells the operator what to type. For example:

```
ASK @F4 Which command do you want to send to the host later?
```

EXIT

The **EXIT** command will disconnect the line and exit Carbon Copy PLUS to the DOS prompt.

IF

The **IF** step analyzes the key the operator typed in response to the **ASK** step, described in the previous section (the first form of the **ASK** step). The **IF** step should appear right after the **ASK** step. To make an **IF** step, type:

- The word **IF**
- a space
- a list of one or more visible characters
- another space
- any valid script file line, consisting of one or more steps

Carbon Copy PLUS performs the step or steps you specify if the key the operator typed matches one of the characters in the list. If there is no match, Carbon Copy PLUS skips directly to the start of the next line. (Carbon Copy PLUS does not just go to the next step, when the next step happens to be on the line that started with **IF**.)

Here is an example:

```
ASK Press 1, 2, or 3 to sound the alarm.
IF 123 ALARM
```

You can type a minus sign just before the list of visible characters. This performs the step if the operator typed a key that is NOT in the list:

```
ASK You'd better press A, B, or C, or I will sound the alarm.
IF —ABC ALARM
```

In practice, the step you type at the end of an **IF** step is one of the sequencing steps described later in this chapter. This moves to a different part of the script file based on the key the operator typed.

There are other ways for a script file's operation to change based on operator input or other conditions:

- Using the @ character in a JUMP step (see "Simple Sequencing")
- Using advanced sequencing steps (see "Advanced Sequencing")

MESSAGE

Sending to the screen is done with the **MESSAGE** step. MESSAGE is a step used by the local operator. Follow the word **MESSAGE** with the text to appear on the screen. You can specify one line of text or several. To mark the end of the message, you must type a line in the script file consisting only of a period. For example:

```
MESSAGE Please wait; Script File will ask host
for other files.
.
```

QUIT

The **QUIT** step stops the operation of the script file causing the emulator to revert to manual operation. **QUIT** also hangs up the phone, ending the connection to the host.

A script file will use **QUIT** whenever it detects a condition it cannot handle. Be sure to write the script file so that it gives the operator a message before it ceases operation.

REPLY

To send text to the host, use the **REPLY** step. There are two forms of this step. The first sends a fixed message to the host. The message follows the word **REPLY**. In the same way that you define a function key, the **REPLY** message can include the "¦" character to send a carriage return, the "^" character to send other control codes, and the "~" character to force a 2-second pause. (But "$" has no special meaning in **REPLY**, as it does when defining function keys.) For example:

```
REPLY DIR *.*¦
```

The second form of **REPLY** sends the contents of one of the function keys, just as though the operator had typed that key during manual operation. The text may have been defined for that key by either the operator using **<Alt><Z>** or by the **ASK** step in this or a previous script file. If there is no text defined for the key, the **REPLY** step sends nothing.

To make this form of the **REPLY** step, follow the word **REPLY** with the "@" character and the name of a function key, as for the **ASK** step. The **REPLY @** combination must be followed by the name of a function key. For example:

```
REPLY @F1
REPLY @C9
```

Thus, if the function key **<F1>** held the information "OK," the **REPLY @F1** would send "OK" to the host.

WAIT

To receive text from the host, use the **WAIT** step. This step waits until the host sends (or fails to send) something specific.

There are several forms of the **WAIT** step, depending on what you want the host to do.

```
WAIT CHAR 'x'
WAIT FOR 'x'
```

These two forms wait for the host to send a certain character. Be sure to put the character inside single-quotes (as 'x' is in the above lines).

When you want to verify more than a single character from the host, you must use the keyword **STRING**. For example:

```
WAIT STRING 'abc'
```

This waits until the host sends the entire string. Suppose 'abc' was the string you typed in the **WAIT** step. Then if the host sends 'ab' and any third character other than 'c', it has no effect; Carbon Copy PLUS continues to wait for exactly 'abc'.

The following form of **WAIT** waits until the host sends a carriage return, typically echoing a command line that the script file sent to the host with the **REPLY** step:

```
WAIT ECHO
```

Another form of **WAIT**, using the keyword **PROMPT**, waits for a certain number of characters. Carbon Copy PLUS counts

the characters but doesn't care which ones the host sends. For example:

WAIT PROMPT 10

waits for any 10 characters from the host.

Timed waits use other forms of the **WAIT** step.

The **WAIT DELAY** form waits a fixed amount of time regardless of what the host does. Type a number after the word **DELAY** representing tenths of seconds. For example, 10 means one second; 600 means one minute. This step waits one second:

WAIT DELAY 10

During this unconditional wait, the emulator does not ignore the host. Carbon Copy PLUS saves any text the host may send during the wait. The script file can use other forms of **WAIT** to analyze this text.

The **WAIT QUIET** form waits until the host has not sent anything for a certain amount of time before going on to the next script file step. In other words, it is comparable to **WAIT DELAY**, but Carbon Copy PLUS sets the clock back to 0 every time it receives any character from the host.

Follow the word **QUIET** with a time (in tenths of seconds) that is long enough to prove that the host has finished carrying out a previous command and is now waiting for further action from the script file. That is, the time should be just longer than any pause that could occur during the host's processing of the command.

Suppose you have a capture file at the PC and want a report from the host to go into the capture file. Your script file could say:

REPLY type report.rpt¦
WAIT QUIET 20

The **WAIT UNTIL** form waits for a specified time of day, which you must specify in military (24-hour) format. For example, this step waits until 3:00 in the afternoon:

WAIT UNTIL 15:00

Finally, one form of **WAIT** waits indefinitely. The only thing that can restart the script file is a preset action from a **WHENEVER** step. The form of this step is just:

WAIT

For compatibility with CROSSTALK, you can also type **WAIT MANUAL**.

Simple Sequencing

Normally, Carbon Copy PLUS proceeds through the script file in sequential order, from start to finish. The **ASK** step and the **WAIT** step can suspend this process until the host or the operator does something. When the process resumes, it still follows sequential order.

The steps described in this section vary the sequence of steps in a script file. Some steps may skip forward in the file, bypassing certain steps in the file. Some steps may go backward in the file, repeating certain steps. It is possible, intentionally or by mistake, to create a script file whose operation never ends.

DO

To jump to a different script file, use the **DO** step. Specify the new script file's name after the word **DO**. For example:

DO RPTRQST

You cannot jump to anywhere but the start of another script file. You cannot return to the first script file, unless the other script file uses **DO** to jump back to the start of the first file.

The **DO** step will cancel all **OERROR, OTIMEOUT** and **WHENEVER** watches (see "Advanced Sequencing").

JUMP and **LABEL**

You can put labels at various points in the script file. Once you have labeled a point in the file, you can jump to this point from anywhere else in the script file. Jumping from one point to another is one way to change the sequence of a script file. Labels can be as long as you want, but they must start with a letter and not contain spaces.

A label should clearly describe the situation where that point in the script file would be reached. However, Carbon Copy PLUS only notices the first 8 characters of a label. So you must not use two labels in a script file that are identical in the first 8 characters, such as "TransmitRequest" and "Transmit-Password".

A **LABEL** has no effect except to define a marker for the point in the script file where the label occurs. The **JUMP** step names a label. Whenever Carbon Copy PLUS reaches a **JUMP** step, it moves immediately to the **LABEL** specified by the **JUMP** instead of proceeding in sequential order.

JUMP and **LABEL** go together. However, many **JUMP** steps can all jump to the same **LABEL**. The most common place for a **JUMP** step is at the end of an **IF** step, so that the jump only occurs if certain conditions are met. A **LABEL** must never occur at the end of an **IF** step; all labeling must be unconditional.

If **JUMP** occurs before **LABEL**, some steps in the script file may be skipped, such as the indented steps in this example:

```
ASK Do you want to see a directory?
   IF N JUMP NoDirectory
   REPLY DIR *.*¦
WAIT QUIET 25
LABEL NoDirectory
```

If **LABEL** occurs before **JUMP**, some steps in the script file may be repeated:

```
LABEL  StartOfProcedure
. . . .
ASK  Want to do it again?
IF Y JUMP StartOfProcedure
```

Variable JUMP

If you use the "@" character after the word **JUMP**, Carbon Copy PLUS replaces "@" with whatever character the operator typed at the most recent **ASK** step that did a single-character input. This lets a single **JUMP** step jump to more than one point in the script file depending on operator input. For example, a script file can present a menu:

```
LABEL Menu
MESSAGE Command Menu:
A -- Add F -- Find
D -- Delete Q -- Quit
.
ASK Please pick an option--
* IF ADFQ JUMP Command@
MESSAGE Error--you must select A, D, F, or Q.
.
JUMP Menu
LABEL CommandA
. . .
LABEL CommandD
. . .
LABEL CommandF
. . .
LABEL CommandQ
```

In the step marked by "*," the label "Command@" becomes "CommandA," "CommandD," "CommandF," or "CommandQ," depending on the key the operator typed at the **ASK** step just above. The **JUMP** step moves directly to one of the four sections that appear lower in the script file. Although the contents of these sections aren't shown in the example, each section would carry out one of the options available to the operator.

The step marked by "*" is an **IF** step that verifies that the operator typed "A," "D," "F," or "Q." It is a good idea to verify

the operator's keystroke before doing a variable jump. If you didn't verify the keystroke, the operator could cause a jump to a label that doesn't exist in the script file (for example, "CommandZ"). Carbon Copy PLUS would recognize this condition as an error and sequentially follow the rest of the script. The script file in the example displays an error message and uses another **JUMP** step to redisplay the menu and let the operator try again.

When you compile a script file, the compiler ensures that you don't type a label in a **JUMP** step that isn't in the script file. But the compiler cannot check that a variable jump has a valid effect, because the compiler cannot know what keystroke the operator will press when you run the script file.

RWIND

The **RWIND** (rewind) step jumps to the start of the script file. That is, it starts the script over.

SKIP

The **SKIP** step works like **JUMP**. However, following **SKIP**, you can type a positive number instead of a label. **SKIP** skips that number of lines, effectively jumping forward in the script file. For example:

```
SKIP 15
```

The **SKIP** command can also use a label, in which case it will act like a **JUMP** command. For example:

```
SKIP Lab1
   or
SKIP Lab2
```

We recommend that you use labels, not numbers. If you **SKIP** far ahead in a file by number, you must remember to change the numbers in the **SKIP** steps any time you add lines to, or remove lines from, the file. Otherwise, the **SKIP** steps will not go where you think they will.

Advanced Sequencing

An "exception" is an event that a script file can't handle (or you decide not to handle) with its normal, sequential steps. A script file can watch for exceptions. This technique, like the **IF** step, lets a script file make decisions. Three steps watch for exceptions:

- **OERROR** (On Error) does something if an error occurs.
- **OTIMEOUT** (On Timeout) does something if a **WAIT** step has been waiting longer than a specified amount of time.
- **WHENEVER** does something whenever the host sends a certain string.

A line in a script file starting with **OERROR, OTIMEOUT** or **WHENEVER** sets a watch for that type of exception. You can set a watch for more than one type of exception, but you cannot set more than one watch for a single type. For example, if a script file runs into a second **WHENEVER** step, it cancels the watch specified by the previous **WHENEVER** (but any **OTIMEOUT** and **OERROR** watches stay active).

If the **OERROR, OTIMEOUT** or **WHENEVER** keyword is followed by a minus sign, that watch is cancelled.

The **DO** step described in the previous section cancels all watches.

OERROR
The **OERROR** step sets a watch for errors. Errors are situations that the script file compiler could not anticipate, where further sequential operation of the script file is likely to produce the wrong result. For example:

Communication Errors:

- The script file places a call to a number that is busy or doesn't answer.
- The host hangs up the phone (it "drops DTR").

- So many communication errors occur that not only XMODEM or KERMIT, but other protocols as well, decide it is impossible to transfer a file as requested. (In this case, Carbon Copy PLUS hangs up the phone.)

You specify where in the script file to jump if an error occurs. For example:

OERROR JUMP RunError

If an error watch is not active, errors abort the script file and return Carbon Copy PLUS to manual operation. Carbon Copy PLUS notifies the operator that this has happened.

OTIMEOUT
The **OTIMEOUT** step sets a watch for any **WAIT** step that waits too long. **OTIMEOUT** specifies (in tenths of seconds) how long is too long and where in the script file to jump if a timeout occurs. For example, this step limits all waits to one minute:

OTIMEOUT 600 JUMP GiveUp

If a timeout watch is not active, **WAIT** steps will wait indefinitely.

WHENEVER
The **WHENEVER** step sets a watch for a specified string of text. Following the word **WHENEVER** is the string to watch for, enclosed in double-quotes, and one or more legal steps. When Carbon Copy PLUS runs into a **WHENEVER** step, it sets a watch for this string and ignores the entire remainder of the script file line. If Carbon Copy PLUS later sees the desired string from the host, it stops what it was doing in the script file, performs the steps on the **WHENEVER** line, then returns to where it left off in the script file.

For example, suppose the host might send "Goodbye" and hang up the phone at any time. The normal portion of your script file would interact with the host normally, but the start of your script

file would tell Carbon Copy PLUS to watch for this message:

WHENEVER "Goodbye" ALARM : ABORT

As a less dramatic example, some hosts send only one screenful of text, then ask you to type a key to receive the next screenful. When you are using a script file and a capture file, you may want text to come to the screen (and into the capture file) as fast as possible. So you tell Carbon Copy PLUS to send a carriage return to the host immediately whenever the host asks for confirmation:

WHENEVER "Press Return for More?" REPLY¦

Some steps occurring in the same line as **WHENEVER** deserve special mention:

DO
This form in a **WHENEVER** line resumes the script file even if it has suspended itself indefinitely with the **WAIT** (**WAIT MANUAL**) step. For example, you can use a **WAIT** step to wait forever, relying on the **WHENEVER** step to resume sequential operation when the host sends the desired string.

JUMP label
If you say to jump to somewhere else in the script file, Carbon Copy PLUS assumes you don't want the script file to return where it was when the **WHENEVER** watch was satisfied.

WHENEVER —
If you are using **WHENEVER** to watch for one occurrence of a string (as opposed to every occurrence), then the line that turns on the watch must also contain this form to turn off the watch.

If the current step in the script file and the currently-active **WHENEVER** step are both looking for the same text from the host, they both see it. The **WHENEVER** step takes effect first. Unless the **WHENEVER** step does something drastic, like **ABORT** or **JUMP**, the current step takes its action when the **WHENEVER** step is finished.

When a script file ends, none of these sequencing options remains in effect.

Carbon Copy PLUS Script File Compiler

After you have typed the entire script file and exited from the text editor, use the program "**CCS**" to compile the script file. Compiling a script file verifies that each step in the file is in a legal form. (If there are errors in the script file, the compiler displays error messages on the screen; see Appendix C.) Compiling a script file produces a file with the same name as the script file, but with the file type **.CCC** (for Carbon Copy PLUS Compiled script file). This file contains your instructions in a more compact form; it is the file CCHELP reads.

Run the script compiler from DOS by typing **CCS** and pressing **<Enter>**. The compiler asks you for the name of the file you typed using the editor. If you named this file with file type **.CCS**, then you don't have to type "**.CCS**" now. As a shortcut, you can type **CCS**, a space, the filename, and **<Enter>**, all on the same line.

If the compiler tells you there are errors in your script file, use the text editor again to change the file, then compile it again.

Debugging

The script compiler detects errors of form in script files. However, even after you have corrected these, errors of logic may remain. (You typed valid steps, but the result when applied to the host is not what you want.) If you don't get the desired results from the script file, exit to DOS, edit and recompile the file, and try again.

Every script file you write should anticipate as many unusual cases as it can. For example, does the host always respond the same way in a certain situation? Can the host send unexpected messages to the terminal that would confuse the script file?

Script files should include ample messages to the screen. This lets the operator know what is going on at any moment. It also tells the writer of the script file where Carbon Copy PLUS is in the file, in case something goes wrong.

Operation Using Script Files

You can use any script file that has been compiled. The **E** command on the Carbon Copy PLUS Command Menu (or **<Alt><E>** from the Terminal Screen) prepares to switch to a script file. Carbon Copy PLUS asks you for the name of a script file (a .CCC file). When you type this name and press **<ENTER>**, manual operation ends and Carbon Copy PLUS proceeds under control of the script file.

While the script file has control of Carbon Copy PLUS, any function keys defined as auto-responders temporarily lose their effect. Carbon Copy PLUS only returns to manual operation after it reaches the end of the script file, or a step in the script file that says to return to manual operation, or the operator presses **<ESC>**.

You normally use the Carbon Copy PLUS Command Menu to place a call, capture keystrokes, and initiate other operations. You normally use the Setup Menu to control the commands Carbon Copy PLUS uses to talk to the host.

Appendix A shows the use of commands in a Script File. Appendix B is an index to menu commands. Appendix C contains an alphabetical list of all legal script file steps. You can verify that a CROSSTALK script file is acceptable to Carbon Copy PLUS by compiling it. The compiler locates all CROSSTALK commands that are meaningless in the Carbon Copy PLUS environment and provides an error message. Appendix D provides a list of the Carbon Copy PLUS Compiler Error Messages. Appendix E shows the Help screens.

APPENDIX A

Use of Menu Commands in a Script File

Setup Menu

A — Terminal Emulator

use **EMULATE VT-100**
EMULATE VT-52
EMULATE TVI-920
EMULATE IBM-3101
EMULATE DEBUG
EMULATE NONE

B — Communications Speed

use **SPEED 110**
SPEED 300
SPEED 1200
SPEED 2400
SPEED 4800
SPEED 9600
SPEED 19200
SPEED 38400

C — Word Length

use **DATA 7**
DATA 8

D — Parity

use **PARITY EVEN**
PARITY NONE
PARITY ODD

E — Stop Bits

use **STOP 1**
STOP 2

F — Duplex

use **DUPLEX FULL**
DUPLEX HALF

G — File Transfer Protocol

use **RX** and **XX** to specify **XMODEM**
use **RXB** and **XXB** to specify **XMODEM BATCH**
use **RY** and **XY** to specify **YMODEM**
use **RYB** and **XYB** to specify **YMODEM BATCH**
use **RK** and **XK** after setting **KERMIT TEXT** to specify **Kermit** text mode
use **RK** and **XK** after setting **KERMIT BINARY** to specify **Kermit** binary mode

H — Backspace/Delete

No equivalent form; this option is provided for operator convenience only

I — Filter Incoming Data

use **INFILTER OFF**
INFILTER ON

J — Filter Submenu

use **FILTER** followed by a space and 32 + or — characters, indicating whether to filter the codes Control-@ through Control-

K — New Line on CR or LF

use **LFAUTO OFF**
LFAUTO ON

L — Wrap to Next Line

No equivalent form

M — Flow Control Start/Stop

use **FLOW NONE**
FLOW QS
FLOW SQ

N — Discard Line Feeds

use **OUTFILTER OFF**
OUTFILTER ON

O — Blank Expansion

use **BLANKEX OFF**
BLANKEX ON

P — Tab Expansion

use **TABEX OFF**
TABEX ON

Q — Upper Case Only

use **UCONLY OFF**
UCONLY ON

R — Pause After Line

use **LWAIT CHAR 'x'** where x is the character to wait for
LWAIT DELAY n where n is tenths of seconds to wait
LWAIT ECHO
LWAIT MANUAL
LWAIT NONE

Terminal Emulator Command Menu

A — ASCII File Transmission

use **SEND** followed by the filename to send

B — Break Transmission

use **SBREAK**

C — Capture File Toggle

use **CAPTURE +**
CAPTURE -

D — DOS Gateway

No equivalent form. The temporary transition to DOS requires operator action and cannot be done from a script file.

E — Execute a Script File

The **DO** step described in Page 5-9 can be used to jump from one script file to the start of another.

F — Edit Translate Table

No equivalent form.

G — Go (Call) Host System

use **PHONE** followed by a phone number or by a name from the Call Table to dial the specified host immediately. or NUMBER followed by a phone number, then **GO** to dial that number or **GO LOCAL** to make contact with a host directly connected to the PC (no modems involved)

H — Help Screens

No equivalent form

I — Initialize the COMM Port

use **BYE** to hang up the phone and remain in the emulator

K — Keep or Save System Parameters

use **SAVE** followed by the filename

L — Load System Parameters

use **LOAD** followed by the filename

M — Menus

No equivalent form

N — New Capture File

use **CAPTURE** followed by the filename

O — On-Line / Off-Line Toggle

No equivalent form

P — Printer Toggle

use **PRINTER OFF**
PRINTER ON

Q — Quit

use **QUIT** to exit to Carbon Copy PLUS

R — Receive Encoded File

use **RXMODEM** followed by the filename for **XMODEM** encoding
RXBATCH without a filename for **XMODEM** batch encoding
RYMODEM followed by the filename for **YMODEM** encoding

RYBATCH without a filename for **YMODEM** batch encoding
KERMIT BINARY then **RKERMIT** for **Kermit** binary mode
KERMIT TEXT then **RKERMIT** for **Kermit** text mode

S — Setup Menu

Depending on the Setup Menu command you want, use one of the forms presented earlier in this section.

T — Transmit Encoded File

use **XXMODEM** followed by the filename for **XMODEM** encoding
XXBATCH without a filename for **XMODEM** batch encoding
XYMODEM followed by the filename for **YMODEM** encoding
XYBATCH without a filename for **YMODEM** batch encoding
KERMIT BINARY then **XKERMIT** followed by the filename for **Kermit** binary mode
KERMIT TEXT then **XKERMIT** followed by the filename for **Kermit** text mode

U — Script Command List

No equivalent form

V — View Mode

No equivalent form

W — Write Screen Image to Disk

use **PICTURE** followed by the filename

X — Exit Program — Go to DOS

use **EXIT** to return back to DOS

Y — Clear Terminal Screen

use **CLEAR**

Z — Define Function Key

use **FKEYS**, followed by a space and the exact text you would type after Alt-Z if defining the key from the keyboard. For example, **FKEY1,¦** would define **<F2>** as a carriage return

APPENDIX B

Index To Menu Commands

Setup Menu

All Setup Menu options are discussed in Chapter 2.

Emulator Menu

APPENDIX C

Alphabetical List of Script File Steps

Further information about script files can be found in Chapter 5.

ABORT
Reverts to manual operation (Page 5-3).

ALARM
Sounds the PC's audible alarm (Page 5-3).

ASK string
Displays a string and gets a single keystroke from the operator (Page 5-3). The script file can use the IF step or a variable JUMP to tell what key was pressed.

ASK @key string
Displays a string, gets a complete line from the operator, and assigns that text to the specified function key (Page 5-5).

BLANKEX OFF
BLANKEX ON
Provides a space on otherwise blank lines to be sent to the host. A script file form equivalent to the O Setup Menu option (Page 2-9).

BYE
Hangs up the phone.

CAPTURE +
CAPTURE -
Enables and suspends the capture of keystrokes during file transfer (Page 3-3).

CLEAR
Clears the Terminal Screen. A script file form equivalent to Alt-Y (Page 4-2).

DATA 7
DATA 8
Affects a communication parameter. A script file form equivalent to the C Setup Menu option (Page 2-5).

DO filename
Jumps to the start of a different script file (Page 5-9).

DO
Appearing in a WHENEVER step, restarts the script file after it has stopped itself via WAIT MANUAL (Page 5-9).

DUPLEX FULL
DUPLEX HALF
Affects a communication parameter. A script file form equivalent to the F Setup Menu option (Page 2-5).

EMULATE VT-100
EMULATE VT-52
EMULATE TVI-920
EMULATE IBM-3101
EMULATE DEBUG
EMULATE NONE
Says which terminal to emulate. A script file form equivalent to the A Setup Menu option (Page 2-4).

FILTER string
Says which control codes to remove from incoming text. A script file form equivalent to the Filter Submenu (the J Setup Menu option, Page 2-7).

> **Example:** The "+" and "-" refer to allowing or masking out a control code. Thus, "++-" would allow Control A and Control B, and mask out Control C. Carbon Copy PLUS allows 32 characters, representing the letters A through Z, along with these additional characters: @, [, \,], ^, _.

FKEYS key string
Defines a function key. A script file form equivalent to Alt-Z (Page 4-4).

FLOW NONE
FLOW QS
FLOW SQ
Indicates how the terminal emulator can regulate a transmission from the host. A script file form equivalent to the M Setup Menu option (Page 2-8).

GO
Places a phone call using a number previously specified by NUMBER. A script file form equivalent to Alt-G (Page 2-11).

GO LOCAL
A special script file form (Page 4-2) that contacts a host directly wired to the PC.

IF list steps
Takes the specified steps only if the most recent ASK step got a keystroke that is one of the keys in the specified list (Page 5-4).

INFILTER OFF
INFILTER ON
Enables 8th-bit stripping and control code filtering. A script file form equivalent to the I Setup Menu option (Page 5-1).

JUMP label
Instead of continuing in sequence, goes directly to the specified point in the script file (Page 5-9).

KERMIT BINARY
KERMIT TEXT
Specifies BINARY or TEXT mode for subsequent encoded file transfers using RKERMIT or XKERMIT. A script file form equivalent to the G Setup Menu option (Page 2-5).

LABEL label
Defines a point in the script file that a JUMP can go to (Page 5-10).

LFAUTO OFF
LFAUTO ON
Indicates the codes that separate incoming text lines. A script file form equivalent to the K Setup Menu option (Page 2-7).

LOAD filename
Loads the System Parameters (Setup Menu settings and function key definitions) from a file. A script file form equivalent to Alt-L (Page 5-1).

LWAIT CHAR 'x'
LWAIT DELAY n
LWAIT ECHO
LWAIT MANUAL
LWAIT NONE
Moderates the sending of lines to the host. A script file form equivalent to the R Setup Menu option (Page 2-9)

MESSAGE text
Displays lines of text to the operator (Page 5-5). After typing the message text into the script file, you must type "." by itself on a line to end the effect of the MESSAGE step.

NUMBER digits
Specifies the phone number to be used by the GO step. A script file form equivalent to Alt-G (Page 2-11).

OERROR JUMP label
Sets a special watch for certain errors, forcing a JUMP to the specified point in the script file (Page 5-4).

OERROR -
Cancels the special watch for errors (Page 5-13).

OTIMEOUT n JUMP label
Sets an upper limit of n tenths of seconds for any WAIT step (Page 5-14).

OTIMEOUT -
Cancels the upper limit for WAIT steps (Page 5-13).

OUTFILTER OFF
OUTFILTER ON
Inhibits sending line feeds to the host. A script file form equivalent to the N Setup Menu option (Page 2-8).

PARITY EVEN
PARITY NONE
PARITY ODD
Affects a communication parameter. A script file form equivalent to the D Setup Menu option (Page 2-5).

PHONE string
Places a phone call. A script file form equivalent to Alt-G (Page 2-11).

PICTURE filename
Copies the current contents of the Terminal Screen into the specified file. A script file form equivalent to Alt-W (Page 3-3).

PRINTER OFF
PRINTER ON
Copies incoming text to the printer. A script file form equivalent to Alt-P (Page 4-3, 4-10).

QUIT
Hangs up the phone and ABORTs (Page 5-6).

RDIAL n
Says how many times to retry phone calls. This is a way to adjust this general Carbon Copy parameter from inside a script file; it is not described elsewhere in this Terminal Emulator manual.

REPLY text
Sends text to the host (Page 5-6).

RKERMIT
Receives a file from the host using the Kermit protocol. A script file form equivalent to Alt-R (Page 3-4).

RWIND
Jumps to the start of the script file (Page 5-12).

RXMODEM filename
Receives the specified file from the host using the XMODEM protocol. A script file form equivalent to Alt-R (Page 3-4).

RXBMODEM
Receives one or more files from the host using the XMODEM Batch protocol. A script file form equivalent to Alt-R (Page 3-4).

RYMODEM filename
Receives the specified file from the host using the YMODEM protocol. A script file form equivalent to Alt-R (Page 3-4).

RYBMODEM
Receives one or more files from the host using the YMODEM Batch protocol. A script file form equivalent to Alt-R (Page 3-4).

SAVE filename
Stores the current values of the System Parameters. A script file form equivalent to Alt-K (Page 4-7).

SBREAK
Sends BREAK to the host. A script file form equivalent to Alt-B (Page 4-1).

SEND filename
A script file form equivalent to Alt-A (Page 3-1).

SKIP label
Same as JUMP (Page 5-9).

SKIP n
Skips n lines in the script file (Page 5-12).

SPEED 110
SPEED 300
SPEED 1200
SPEED 2400
SPEED 4800
SPEED 9600
SPEED 19200
SPEED 38400
Sets the communication speed. A script file form equivalent to the B Setup Menu option (Page 2-5).

STOP 1
STOP 2
Affects a communication parameter. A script file form equivalent to the E Setup Menu option (Page 2-5).

TABEX OFF
TABEX ON
Converts incoming tabs to spaces. A script file form equivalent to the P Setup Menu option (Page 2-9).

UCONLY OFF
UCONLY ON
Converts incoming text to capital letters. A script file form equivalent to the Q Setup Menu option (Page 2-9).

WAIT (several different forms)
Request keystrokes from the host, or wait until certain other conditions are met (Page 5-7).

WHENEVER "text" steps
Performs the specified steps whenever the specified text is received from the host (Page 5-4).

XKERMIT filename
Sends a file to the host using Kermit. A script file form equivalent to Alt-T (Page 3-4).

XXMODEM filename
Sends the specified file to the host using the XMODEM protocol. A script file form equivalent to Alt-T (Page 3-4).

XXBMODEM
Sends one or more files to the host using the XMODEM Batch protocol. A script file form equivalent to Alt-T (Page 3-4).

XYMODEM filename
Sends a specified file to the host using the YMODEM protocol. A script file form equivalent to Alt-T (Page 3-4).

XYBMODEM
Sends one or more files to the host using the YMODEM Batch protocol. A script file form equivalent to Alt-T (Page 3-4).

<Carriage Return>
Allows you to proceed past a "WAIT" step that has stalled a script file.

APPENDIX D

Compiler Error Messages

As described in Section 14, you use the compiler to translate a script file in visible form (file type .CCS) into a script file the terminal emulator can use (file type .CCC). The compiler checks the .CCS file to make sure it follows the rules described in this manual. If it does not, you will see one of these error messages:

1. Error: End of File reached without end to MESSAGE command.

The MESSAGE step sends lines of text to the operator from the script file. You must type a line consisting of just a period to mark the end of the message. (If you fail to do this, the emulator may display script file steps as though they were messages.) If the compiler reaches the end of the script file and still has not seen ".", then it knows you made a mistake.

2. Error: Line number nnnn. OUTPUT file too large. Aborting compilation.

3. Error: SOURCE file larger than 1500 lines. Aborting compilation.

4. Error: Too many labels in source file. Aborting compilation.

For the sake of modularity and speed, the compiler limits your visible script file (the .CCS file) to 1500 lines and limits the output file (.CCC) to 4000 bytes. It also requires that you use no more than 200 labels in any .CCS file. If you exceed any of these limits, the compiler will not produce a .CCC file. The solution to all these errors is to break the script file into two or more small files with separate names. Each individual file can use the DO step to jump to the start of another file.

5. Error on line nnnn. Unknown command where command dd expected.

Every script file step must begin with one of the keywords from Appendix B. The error message indicates the line where you did

not follow this rule. If the error message says "command 01", then the error is in the first word on the line. Otherwise, the error is later on the line, following a ":" that separates steps.

6. Error on line nnnn, command dd: Invalid number argument.

You followed the specified script file keyword by something other than a number, or by a number that is not in the allowed range.

7. Error on line nnnn: Label name missing. The word LABEL must be followed by the label.

8. Error on line nnnn, command dd: JUMP to undefined label.

The word JUMP must be followed by the name of a label defined by a LABEL step in the same script file.

9. Error on line nnnn: Single or double quote required before WAIT CHAR or LWAIT CHAR.

The forms WAIT CHAR and LWAIT CHAR specify a single character. In a script file, you must enclose the desired character in quotes.

10. Error on line nnnn, command dd: Invalid argument for command.

Many script file steps have a limited number of "arguments" that can legally follow the keyword. What you typed was not one of the legal arguments. For example, in the PRINTER step, the only legal arguments are ON and OFF.

11. Error on line nnnn, command dd: Text string must be in double quotes.

The WAIT STRING and WHENEVER steps specify a string of text. You must enclose this string in double quotes. The string must not contain a double quote character itself.

12. Error on line nnnn, command dd: Improper time format.

The WAIT UNTIL step specifies a time of day. You must use military (24-hour) format. For example, 26:30, 09:99, and NOON are not legal.

13. Error on line nnnn. Extra characters after command dd.

The compiler reached the end of a step, then found additional visible text that was not legal at the end of that step. Once you have typed a complete step, you must either (1) terminate the line and start a new line, or (2) type a colon to allow another step on the same line. Colons must be preceded and followed by a space. For example:

CLEAR : ALARM

14. Error on line nnnn: End of line reached, expected an argument.

You began, but did not complete, a script file step on a line. Check the specified line and see if the form you used is complete. Only the MESSAGE step can run from line to line.

15. Error on line nnnn: End of line reached, expected a command.

The IF and WHENEVER steps must be followed on the same line by at least one additional step you want performed under certain conditions. This error message means that you omitted this required step.

16. Error on line nnnn: Trying to SKIP past end of script file.

You can follow SKIP with a number indicating a number of lines to skip. This error message means there weren't that many lines left in the script file. Adjust the number following SKIP.

17. Error on line nnnn: Only ONE wildcard allowed in JUMP.

Variable JUMP steps are JUMP steps where the specified label contains the @ character. (The emulator substitutes a key typed by the operator for the @.) There can be only one @ in the label.

18. Error on line nnnn, command dd: Command not used by Carbon Copy in Script Mode.

Carbon Copy supports most CROSSTALK commands, but some CROSSTALK commands, such as ATTENTION, are meaningless in the Carbon Copy environment. The compiler produces this warning so you can remove unsupported CROSSTALK commands from your Carbon Copy script files.

19. Error on line nnnn, command dd: RDIAL cannot be more than 255.

The argument of RDIAL (the number of times to retry a phone call) must be between 0 and 255.

20. Error on line nnnn, command dd: LWAIT DELAY cannot be more than 127.

The argument of LWAIT DELAY (the tenths of seconds to wait) must be between 0 and 127 (for 12.7 seconds).

21. Error on line nnnn, command dd: Invalid argument for LWAIT.

The word LWAIT must be followed by NONE, MANUAL, ECHO, CHAR, or DELAY.

22. Error on line nnnn, command dd: NUMBER cannot be more than 58 characters

The phone number specified in the NUMBER step is limited to 58 characters.

23. Error on line nnnn: Label has already been defined.

The compiler gives this error the second time it sees a LABEL step using the same label. All the labels you define in a script file must be different.

24. Error on line nnnn: Function key definition cannot be recursive.

An FKEYS step cannot define a key in terms of an FKEYS step. For example, "FKEYS F7 @FKEYS F5" is illegal.

25. Error on line nnnn: Command not allowed in Function Key definition.

Conditionals such as IF and WHEN are illegal in an FKEYS definition.

26. Error on line nnnn: There must be one or more characters in quotes.

There must be at least one character inside quotes used for commands such as WAIT CHAR "i".

27. Error on line nnnn: Extra characters following WAIT or WHENEVER string.

There should not be any extra characters following these commands and their delimiters. For example, in the string:

WAIT CHAR "i" YYY

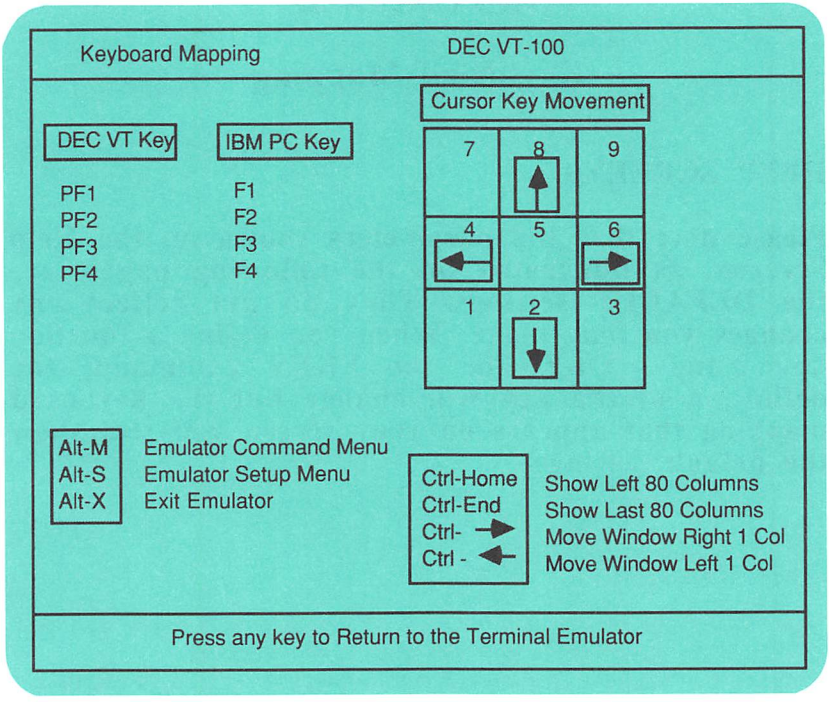
the YYY out of the quotes would be considered extra characters.

APPENDIX E

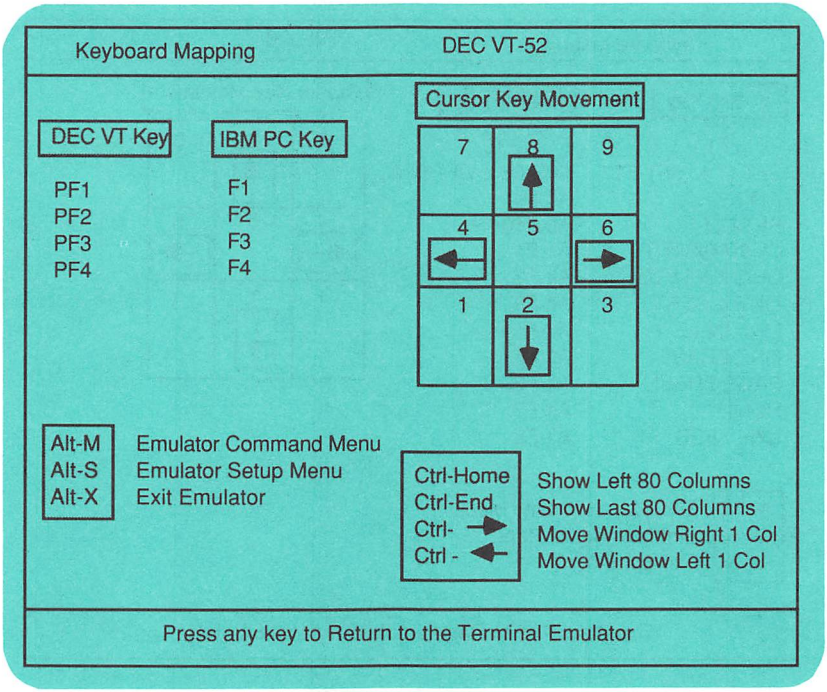
Keyboard Mapping

HELP SCREENS

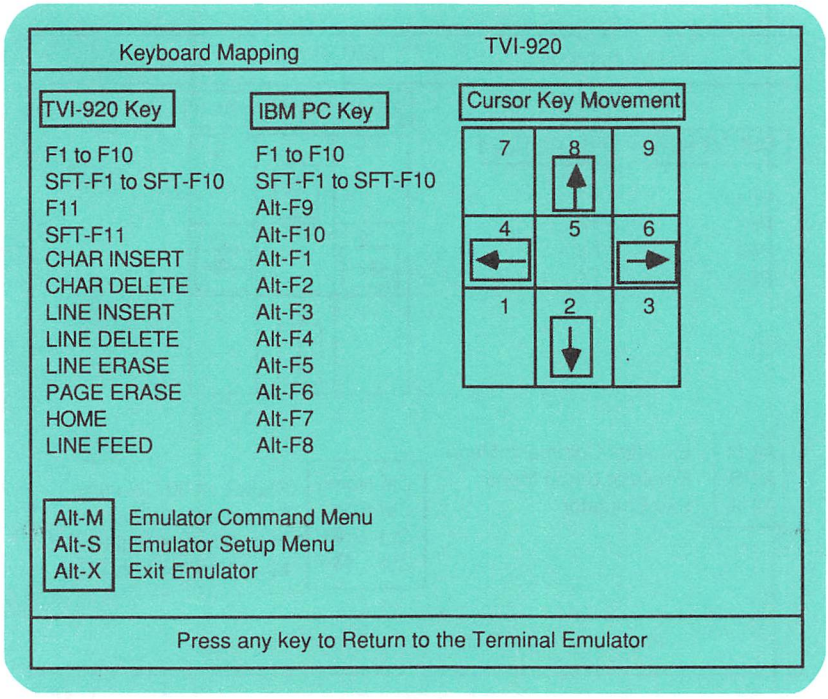
Please note that the parameters shown on the Help Screens, as illustrated on the following pages, are the DEFAULT settings. They do not reflect any changes you may make. When you define a function key using <Alt-Z> or the FKEY command, the definition of the key will change but the keyboard mapping that appears on your screen will still show the default settings.


Keyboard Mapping
DEC VT-100
Cursor Key Movement
DEC VT Key
IBM PC Key
PF1
PF2
PF3
PF4
F1
F2
F3
F4
7
8
9
4
5
6
1
2
3
Alt-M
Alt-S
Alt-X
Emulator Command Menu
Emulator Setup Menu
Exit Emulator
Ctrl-Home
Ctrl-End
Ctrl-
Ctrl -
Show Left 80 Columns
Show Last 80 Columns
Move Window Right 1 Col
Move Window Left 1 Col
Press any key to Return to the Terminal Emulator

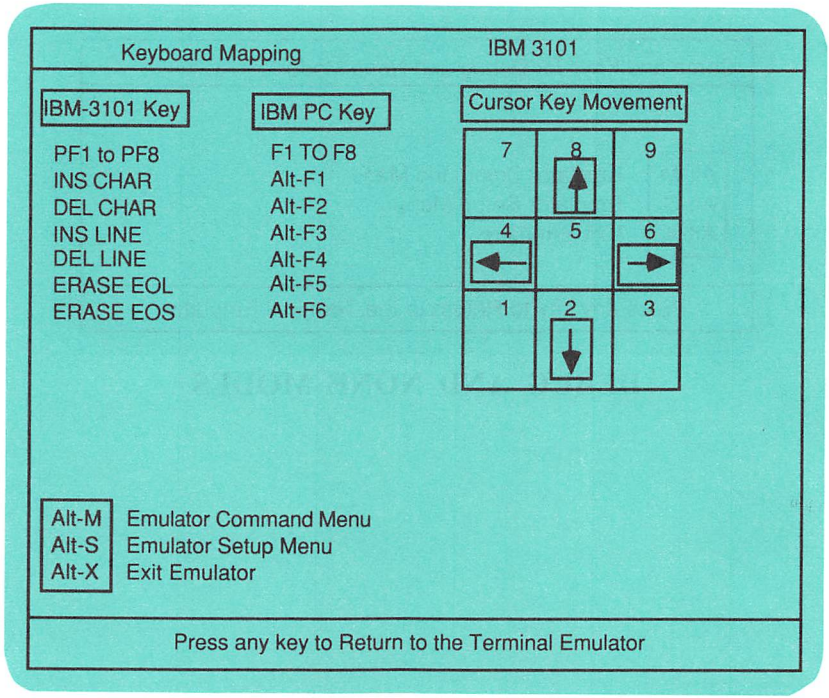
DEC VT-100


Keyboard Mapping
DEC VT-52
Cursor Key Movement
DEC VT Key
IBM PC Key
PF1
PF2
PF3
PF4
F1
F2
F3
F4
7
8
9
4
5
6
1
2
3
Alt-M
Alt-S
Alt-X
Emulator Command Menu
Emulator Setup Menu
Exit Emulator
Ctrl-Home
Ctrl-End
Ctrl-
Ctrl -
Show Left 80 Columns
Show Last 80 Columns
Move Window Right 1 Col
Move Window Left 1 Col
Press any key to Return to the Terminal Emulator

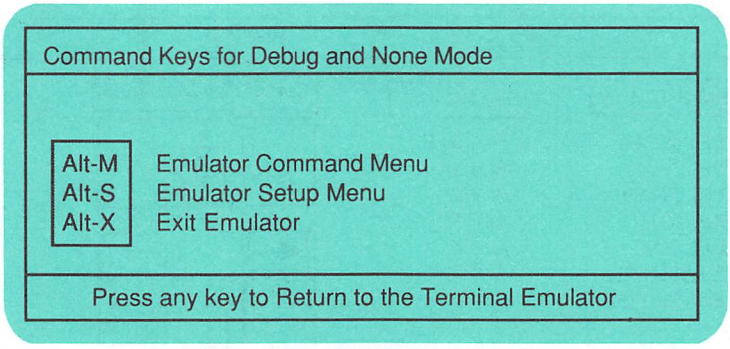
DEC VT-52


Keyboard Mapping
TVI-920
TVI-920 Key
IBM PC Key
Cursor Key Movement
F1 to F10
F1 to F10
SFT-F1 to SFT-F10
SFT-F1 to SFT-F10
F11
Alt-F9
SFT-F11
Alt-F10
CHAR INSERT
Alt-F1
CHAR DELETE
Alt-F2
LINE INSERT
Alt-F3
LINE DELETE
Alt-F4
LINE ERASE
Alt-F5
PAGE ERASE
Alt-F6
HOME
Alt-F7
LINE FEED
Alt-F8
7
8
9
4
5
6
1
2
3
Alt-M
Emulator Command Menu
Alt-S
Emulator Setup Menu
Alt-X
Exit Emulator
Press any key to Return to the Terminal Emulator

TVI-920


Keyboard Mapping
IBM 3101
IBM-3101 Key
IBM PC Key
Cursor Key Movement
PF1 to PF8
F1 TO F8
INS CHAR
Alt-F1
DEL CHAR
Alt-F2
INS LINE
Alt-F3
DEL LINE
Alt-F4
ERASE EOL
Alt-F5
ERASE EOS
Alt-F6
7
8
9
4
5
6
1
2
3
Alt-M
Emulator Command Menu
Alt-S
Emulator Setup Menu
Alt-X
Exit Emulator
Press any key to Return to the Terminal Emulator

IBM 3101



DEBUG AND NONE MODES

INDEX

W

X

NOTES

NOTES